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THESIS

PLANNING AND IMPLEMENTING TOTAL QUALITY
MANAGEMENT (TQM) IN A NAVAL SERVICE
ORGANIZATION: A CASE STUDY OF FLEET
NUMERICAL OCEANOGRAPHY CENTER

by

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DECEMBER 1990

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The study's goal was to determine FNOC's readiness to accept TQM. And if they were assessed as ready, to tailor a TQM implementation plan to their needs. Furthermore, a case was provided to help others wrestle with the readiness and implementation issues.

The study used a two-phased approach to assess FNOC. The first phase was a review of the current practitioner-oriented management literature about TQM, change theory, and strategic management. The second phase was followed by an on-site field study of FNOC itself including an Organizational Assessment Survey and personnel interviews. This phase

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The results indicated FNOC ready for TQM and then a TQM Implementation Plan (Agenda) was tailored for their needs. The plan will help guide FNOC's future TQM implementation and is useful to any other public/private sector organization who desires to avoid TQM implementation problems.

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Planning and Implementing Total Quality Management (TQM) in a Naval Service Organization: A Case Study of Fleet Numerical Oceanography Center

by

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Submitted in partial fulfillment of the
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ABSTRACT

A Chief of Naval Operations (CNO) initiative in 1989 prompted Fleet Numerical Oceanography Center (FNOC) to request that an organizational study of their operations be conducted and a strategy for implementing Total Quality Management (TQM) be developed. This thesis provided that study.

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ACKNOWLEDGEMENTS

To my parents, whose encouragement, guidance, and support throughout the years have enabled me to grow and to achieve a dream--a Master of Science in Financial Management.

To my family, for their patience and understanding that helped me maintain my sense of humor while under the Naval Postgraduate School's day-to-day stress and strain.

I. INTRODUCTION

A. GENERAL

The history of management thought shows that a variety of disciplines have contributed to increasing knowledge of management. Engineers, economists, mathematicians, behavioral scientists, soldiers, politicians, professors, practitioners, and priests have all played a role in the development of management both as a science and an art. Three schools of thought, Classical (Frederick Taylor: scientific management), Behavioral (Elton Mayo: the Hawthorne experiments), and Quantitative (operations research (OR) and management science) have sprung from a combination of the above professions, but controversy still surrounds what is the best method by which to manage an organization. None of these methods has succeeded in every organizational situation, and with the technical, political, and cultural changes that are occurring today, the best method is still being sought. [Ref. 1]

Even though there may never be one best way to manage, the Navy has chosen Total Quality Management (TQM) as its preferred management philosophy and management method. Admiral C. Trost, Chief of Naval Operations (CNO), presents TQM as a way to improve productivity at Department of Defense (DOD) installations. He supports TQM because he feels that by

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applying the principles of TQM, "we can make our Navy even better as we face a period of more difficult fiscal and personnel resource decisions." [Ref. 2]   Therefore, he has designated TQM as a CNO special interest item and has directed all his Officers-In-Charge to be personally involved in implementing TQM within their organizations.

The CNO initiative prompted Fleet Numerical Oceanography Command (FNOC) to request that an organizational study of their operations be conducted and a strategy for implementing TQM be developed. This thesis project accepts that challenge.

B. OBJECTIVE AND RESEARCH QUESTIONS

1. The Objective

The goal of this thesis is to assess the readiness of FNOC to accept TQM, to develop a TQM implementation strategy framework that will assist and guide the subsequent development of TQM at FNOC, and to write a case study useful to any other public/private sector organization who desires to avoid TQM implementation problems.

2. The Research Questions

The following research questions will be addressed.

- What is the readiness of FNOC to accept TQM into its organization?

- If FNOC is prepared to accept TQM, what strategic plan would be helpful to assist and guide the command's TQM implementation efforts.

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C. RESEARCH METHODOLOGY

This thesis uses the following two-phased approach to determine FNOC readiness to accept TQM and to collect the necessary data to develop a strategy for implementing TQM at FNOC.

1. Literature Review

The first phase of the study was a review of current literature about TQM, change theory, and strategic management development and implementation. Also, a review of all Department of Defense (DoD), Fleet Numerical Oceanography Center (FNOC), FNOC headquarters; Commander Naval Oceanography Command (CNOC) policy instructions relating to FNOC's history, mission, and function was conducted. This literature review provided the basic knowledge which was applied in the next phase.

2. On-site Field Study

The initial phase was followed by an on-site field study of the FNOC organization including its personnel, structure, and technology (work) processes. These organizational assets were assessed as they relate to the change desired and the TQM method to be introduced. The major portion of the on-site material was gathered through an "organizational assessment" survey, interviews with the organization's employees, and general observation.

a. Organizational Assessment Survey

An Organizational Assessment Survey was administered to FNOC employees. It was composed of three sections and 255 questions: 1) 151 questions dealt with general job and organizational issues 2) 95 questions dealt with TQM issues and 3) nine questions that dealt with FNOC demographics. A copy of the complete survey is in Appendix A.

The survey was done to provide the author and FNOC with an assessment of FNOC's organizational strengths and weaknesses that might help or hamper TQM implementation. In short, the survey is used to provide an assessment of FNOC's needs, ability to accept change, and knowledge about TQM.

b. Interviews

Interviews were conducted with FNOC's Departmental managers, military officers, and key civilian staff personnel throughout the thesis project. FNOC personnel were asked to explain their job (or department) functions, what they knew about TQM, and how they hoped TQM would help their organization.

c. Observation

Observation was done by touring FNOC facilities and by attending various committee meetings throughout the thesis study. How employees interacted between themselves and with customers (albeit most customer interaction was not on a personal basis, but rather through world-wide, highspeed

computer networks) was noted. Furthermore, organizational structure and technology processes were critically observed, and from a TQM framework, ideas were developed to improve its structure and its technology (work) processes.

D. THESIS ORGANIZATION

The organization and contents of this thesis are briefly summarized in the following paragraphs.

Chapter II provides an overview of the TQM system that is characteristic of a well managed organization. It also discusses a framework for developing an implementation strategy and emphasizes the role of the strategy process in carrying out policy by use of a three-step process: grand strategy, operational strategy, and organizational tactics (actions). This TQM overview and strategic planning examination was done so that TQM guidance and a strategic implementation framework, consistent with the needs of FNOC, could be developed. This Chapter is based on a review of the current practitioner-oriented management literature and TQM seminars.

Chapter III is case study of FNOC. It provides an overview of the FNOC organization and its TQM implementation challenge.

Chapter IV presents the results and analysis of the Organizational Assessment Survey that was administered at FNOC during the week of September 24-27, 1990. It assesses FNOC's

organizational strengths and weaknesses that might help or hamper the implementation of TQM. The survey administration was done to assess FNOC's readiness to accept TQM and to collect information necessary to develop coherent TQM implementation strategy.

Chapter V presents an agenda for implementing TQM at FNOC. This TQM Implementation Plan offers guidelines for FNOC's future TQM development. This chapter also presents a TQM management structure that links organizational communication and decision-making horizontally across departments and vertically within the chain-of-command.

Chapter VI summarizes planned organizational change. It also offers recommendations for specific actions and measures that will assist FNOC's TQM implementation efforts. These recommendations were based on the information revealed from the Organizational Assessment Survey and personnel interviews.

II. TOTAL QUALITY MANAGEMENT: DEVELOPING AN IMPLEMENTATION STRATEGY

A. TQM BACKGROUND

Quality is the essence of the emerging management philosophy in America today. At a time when Japanese producers enjoy a 4 to 1 advantage, measured by rejection rates of finished products over their American counterparts in many vital industries, a growing number of CEO's and other top managers have recognized that quality is a top strategic issue. [Ref. 3]

The impetus for this quality management philosophy is simple-survival. [Ref. 4] As the following statement by John Young, CEO of Hewlett Packard, suggests, many of our nation's leaders (public/private) believe that responding to the quality issue is vital to their continued existence: "In today's competitive environment ignoring the quality issue is tantamount to corporate suicide." [Ref. 4:p. 168] In the final analysis, many of the best American companies have recognized that quality is the strategic weapon to answer the global challenge.

Regardless of one's beliefs about the right way to manage an organization, the quality management philosophy is certainly in widespread use today. The list of American

companies using quality management techniques is long, indeed. It reads like a list of "who's who" in American business: Ford, Bechtel, Xerox, Chevron, Dow Chemical, Nashua, Hewlett-Packard, Boeing, Motorola, IBM, Corning Glass, and so on. Interest in this management system is not only limited to the private sector of American business but, also, to the public sector as well.

The federal government is also using quality management techniques as their preferred management method. A list of federal organization's using quality management techniques include the Internal Revenue Service (IRS), National Aeronautics and Space Administration (NASA), Veterans Administration, and many others. Furthermore, as America's largest organization, the Department of Defense (DoD) and most of its component organizations have been facing its improved efficiency challenges in part through its Total Quality Management (TQM) initiative. The Federal government and many of its employees are committed to the quality management system.

After reviewing the practitioner-oriented management literature, it's hard to refute the pervasiveness of the quality management philosophy. Throughout America it is easy to find well-managed organizations using quality management techniques as its preferred management system. Clearly, the notion of quality has become a most important business issue of the 1990's.

1. What is TQM

The Department of Defense of Defense (DoD) defines TQM in its Total Quality Management Guide as follows:

> TQM is both a philosophy and a set of guiding principles and practices that represent the foundation of a continuously improving organization. It applies human resources and quantitative methods to improve the material and services supplied to an organization, and the degree to which the needs of the customer are met now and in the future. It integrates fundamental management techniques, existing improvement efforts, and technical tools in a disciplined and focused continuous improvement process. [Ref. 5]

The Naval Supply Systems Command (NAVSUP) of Washington, DC defines TQM as follows:

> TQM is both a management philosophy to guide a corporate culture and a long-term strategy for creating and sustaining an organization-wide quality improvement process. It is customer focused, takes a long-term perspective, and emphasizes doing things right the first time (instead of relying on inspection). It uses teamwork, participatory management, training in problem-solving methods and action-oriented measurement, and analytic skill to tap the productivity and creativity of all workers. [Ref. 6]

2. TQM Concepts

While the preceding definitions offer some insight and a better understanding about TQM, the essence of TQM cannot be boiled down into only a few sentences. Therefore, the following presents some critical definitions and key concepts about TQM to help better understand the essence of this new management system.

When quality is referred to as part of the TQM effort in the Federal government, it is defined as "meeting the

customer's requirements, needs and expectations, the first time and every time." [Ref. 7]

The customers inside and outside each organization determine what quality is. According to the TQM system, "customer" has a unique definition. The customer is whoever a work product goes to, and all the other people down the line that it affects.

For example, FNOC, as the primary analysis and forecast facility for the U.S. Navy, provides the fleet with weather products every day. This relationship enables the fleet units (FNOC's external operational customer) to specify product requirements. As a consequence, FNOC's procedures and program development should be designed to meet the specific operational requirements of these fleet customers.

Within FNOC, the internal customer is whoever a work product goes to for further value-added service. On a macro-level, the models department designs computer programs that meet the operational requirements of the computer systems department. On a micro-level, each employee is a customer of the person from whom they receive a work product from. More specifically, the models department manager is the internal customer of the programmer who provides him with the software model for a satellite communication project. Also, any departmental manager is the internal customer of those people from whom he receives administrative reports.

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Doing something right the first time requires people to focus on work processes. TQM forces people to think in terms of process rather than in terms of finished product. The hallmark of TQM is an organizational culture committed to the continuous improvement of work processes.

According to TQM, a work process is

a system of operations to produce an output of higher value than that of the sum of its inputs. A work process is also defined as the logical organization of people, materials, energy, equipment and procedures into work activities designed to produce a specific end result (work product). [Ref. 8]

For example, FNOC provides numerical products to support the optimum routing for both ships and aircraft to enhance missions with respect to weather, time and distance, and fuel consumption. This work process begins with an information flow of weather data being collected and transmitted to FNOC through various communication channels. Next, through computer analysis, weather data is processed providing a global "snapshot" of atmospheric and oceanographic conditions. Finally, the cycle is complete with a weather product being transmitted to the fleet. This information flow is the macro-level work process through which FNOC provides weather products to the fleet.

Systematic use of statistical methods enables managers to obtain and evaluate data about a work process. Statistical methods are basically scientific methods that use statistical data to study processes and to identify and eliminate problems

as a result of variation within the work process. TQM applies analysis to statistical tools (e.g. charts and graphs) to guide decisions and problem-solving and then to provide feedback information for further process adjustments or maintenance. These statistical methods tap the imagination and innovation of the organization's people.

Research shows that because TQM is a unique philosophy, it will meet with employee resistance and that resistance will act as a primary barrier to implementing TQM within an organization [Ref. 9]. "Indifference and lack of involvement by top management" are frequently cited by organizations which have attempted to implement TQM as the principle reason for the failure of quality improvement efforts [Ref. 10]. Since the methods by which an organization conducts its business are clearly the prerogative of top management, it is, therefore, top management which must be convinced of the merits of TQM. Managers and supervisors should practice TQM fundamentals before expecting their people to practice them. Top management commitment is key to the successful and sustained implementation of TQM.

3. TQM Summary

In summary, TQM is a customer-oriented, quality-focused management philosophy for continuously improving an organization's processes through application of modern process control techniques. It asks organization members to think of

everything they do as a series of processes and to view all workers as both customers and suppliers of the goods and services produced. TQM requires top-management commitment for successful and sustained implementation. Ultimately, TQM is a means through which an organization creates and sustains a culture committed to the hallmark of TQM--continuous improvement of work processes.

B. DEVELOPING AN IMPLEMENTATION STRATEGY: AN IMPLEMENTATION PLAN

1. Introduction

This section provides a framework for developing a TQM implementation strategy. It draws from strategy theory and organizational development (OD) techniques and views strategy development in light of Fleet Numerical Oceanographic Center's (FNOC) decision to implement Total Quality Management (TQM) within its organization. This section emphasizes the role of the strategy process in carrying out policy by use of a three step process: grand strategy, operational strategy and organizational tactics (actions). In sum, this strategic plan for implementing policy provides a focused, integrative, yet efficient way for pursuing implementation strategies.

Implementation efforts, like most other creative efforts, are 10% inspiration and 90% perspiration [Ref. 11]. The ability and energy to persevere in the face of setbacks and frustration has often been a critical

factor in whether or not something actually gets implemented. Nonetheless, an implementation strategy must be based on mobilizing constituent support, co-opting or neutralizing potential opposition, appealing to interested parties, and developing alliances and coalitions [Ref. 12]. Since strategy implementation is a complex process, it is appropriate to begin this discussion by looking at the strategy implementation process itself.

2. Strategy Process

The function of an organizational strategist has not changed in recorded history [Ref. 13]. Strategist have always struggled, with greater or lessor degrees of success, to overcome the problems involved in marshalling and using organizational resources to achieve a desired goal while struggling with a myriad of influences, many of which are beyond anyone's control. Today, only the context of the struggle has changed.

The role of the organizational strategist has become more complicated in developing strategy in its simplest form: a plan of action that organizes efforts to achieve objectives. During earlier times, decisions required to produce strategy were often made by one person. In those relatively simple times, the decision-maker could grasp and decide issues ranging from the broadest political direction of the organization to the most detailed organizational actions. The

complexity of the modern context virtually eliminates the possibility of one person having the ability to grasp all facets of a situation. Today, it is much more accurate to consider strategy as a complex "decision making" process that connects the ends sought (goals) with the ways and means of achieving those ends.

The modern strategy process (in both theory and successful practice) consists of at least three basic interconnected and sequential decision steps that define and shape strategy at each level of authority. The steps range from broad and occasionally abstract decisions about organizational goals to narrow and concrete decisions concerning organizational tactics (actions). Between those two extremes is the decision making step that is referred to as operational strategy. [Ref. 13:p. 13]

Operational strategy development for FNOC in view of its organizational climate survey is one of the principle objectives of this thesis project. Nonetheless, an organization must begin its strategy development by defining its grand strategy: its organizational vision.

3. Grand Strategy: Determining an Organizational Vision

As it is difficult to score a bull's-eye without a target, it is also difficult to devise a successful action plan unless one knows the aim of the plan. The first task of

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the strategist is to define the vision for its organization that forms the foundation of the strategy process.

The vision is a clear, positive, forceful statement of what the organization wants to be in five, even 10 years. It is expressed in simple, specific terms. The vision gives an organization a set of values. The vision draws from these values and allows the organization to stretch and aim for a high target. The vision must be energetic enough to excite people and show them through a set of guiding principles the way things can be. A well crafted vision supported by action can be an influential tool for focusing the organization toward a common goal. [Ref. 14]

Consider the vision of two former national leaders: [Ref. 14:p. 10]

> "I have a dream..."
> --Dr. Martin L. King

> "Ask not what your country can do for you; ask what you can do for your country."

> --President John F. Kennedy

Consider also the vision statements of some Federal organizations which have been cited for their accomplishments in quality improvement. [Ref. 14:pp. 10-11]

> We are Aeronautical Systems Division, the center of excellence for research, development and acquisition of aerospace systems.
> We work together to create quality systems for combat capability to ensure we remain the best Air Force in the world and preserve the American way of life forever.
> --AirForce Systems Command, Aeronautical Systems Division (ASD)

"Courtesy, Compassion, Competence, Commitment"

--VA Medical Ce: :r, Kansas City, MO

Whatever form the vision takes, it is important that it be communicated throughout the organization frequently and with conviction.

The point remains, however, that a determination of organizational goals is the first and most crucial step in the strategy process. Strategy success depends heavily on setting up clear goals. Success without clear goals amounts to little more than bumbling good fortune.

4. Operational Strategy

After identifying and assessing the organization's vision, values, and guiding principles, the strategist defines an organization's operational strategy. Operational strategy is defined as the art and science of planning, orchestrating and directing organizational resources to achieve organizational goals [Ref. 13:p. 14]. The primary job of operational strategy is to make full and combined use of the unique capabilities of its organizational assets.

However, a major obstacle to the implementation of new policies, goals, or methods of operation is the resistance of an organization's members to change [Ref. 15]. Therefore, if an operational strategy is to succeed, it must be crafted to bring about planned change aimed at its personnel.

The following section develops an operational strategy to bring about planned change aimed at FNOC's personnel. Its roots stem from organizational development (OD) techniques, which try to change the ways people work together to achieve the organization's and their own goals. [Ref. 15:pp. 375-385]

5. Framework for Organizational Assessment

Joan Lancourt proposes a systematic program to bring about changes within an organization that is useful to FNOC's TQM implementation efforts [Ref. 16]. Fundamental to Lancourt's strategy is a careful assessment of an organization's total implementation picture. An organization armed with the results of its organizational assessment survey is ready to begin linking its strategy development to its surveyed responses to its implementation goals. From this process the organization develops its operational strategy.

The following Implementation Assessment Matrix [Ref. 16:p. 4] shown in Table 2.1 links selection of a strategy to the type of response to the implementation goal. This matrix is recommended for use by FNOC in its operational strategy development.

TABLE 2.1. IMPLEMENTATION ASSESSMENT MATRIX

Response to Goal: TQM Implementation	Strategy
Agreement or Consensus	Cooperation or Collaboration
Difference	Campaign
Disagreement or Dissensus	Contest

The key to successfully using this Implementation Assessment Matrix is for the organization to be painstakingly thorough in identifying various actors' responses to a goal or objective [Ref. 12]. For example, collaborative or cooperative strategy is only useful when all parties are willing and ready to act together to carry out a particular goal. If there is no real readiness to act, then a cooperative strategy will be unsuccessful. In such situations, a campaign or content strategy must be employed, until such a situation of agreement does exist, at which time a cooperative approach may be used. Valuable time and resources are wasted when a thorough assessment is not initially made. [Ref. 11:pp. 89-90]

6. Organizational Tactics (Actions)

The execution of strategy involves the use of organizational tactics (actions) drawn from its operational strategy. The following Implementation Plan Matrix [Ref. 16:p. 6] shown in Table 2.2 briefly provides the framework for FNOC to develop its organizational tactics. It outlines the major parts of each strategy, the obstacles to be overcome, and the role of the change agent.

One must realize, in using a matrix such as this that, while the material is categorized for presentation, in actuality, the categories and tactics (actions) are not static. An issue may move back and forth between categories,

TABLE 2.2: IMPLEMENTATION PLAN MATRIX

Response to Goal: TQM Implementation	Assumptions Value/Interest	Primary Strategy(ies)	Predominant Role of Change Agent	Chief Obstacles/ Problems to Overcome	Actions Called for (Examples)
-mutually enhancing -basic agreement on how issue to be resolved -likely to reach agreement after full discussion	Common interest arising out of common values	<u>Collaboration</u> -consensus -leadership by example -goodwill -education -persuasion	<u>Catalyst</u> -enabler -educator -facilitator -role model	-apathy -inaction -poor communication	-get the facts -problem solving -joint action
-possibility for consensus exists but as yet no agreement -redistribution of resources	Change agent believes he can convince opponents that his proposal conforms to their "true" values or interests	<u>Campaign</u> -reward/recognition -education -alliance building -rational persuasion -peer pressure -brain-storming -collective bargaining	<u>Persuader</u> -educator -broker -arbitrator -negotiator -compromiser -mediator -role model -coach	-misinformation -apathy -moderate opposition to position -disagreement over means, not end -leadership infighting	-instructional videos -testimonial by prestige figures -organize ad hoc groups -endorsements -activate existing groups -individual conversations to persuade
Important Parties: a. refuse to recognize issue b. oppose proposal	Little likelihood of changing values or interests of opposing parties	<u>Contest</u> -legal definition of policy -supervisor intervention -personnel transfers -reduced funding -reduced privileges	<u>Contestant</u> -educator -referral agent	-social, economic and political power of opposition -premature action -going too far	-review legal definition of policy -supervisor intervention -reduced funding -reduced privileges

and tactics (actions) invariably blend from category to category in the everchanging, unfolding of reality. Key to this understanding is that change is a dynamic process and that one must constantly reassess one's approach. This process of fine tuning is similar to the need for a symphony orchestra to retune instruments between movements or the need for a race car to be checked during pit stops. [Ref. 16:pp. 5-8]

7. Strategy Implementation Summary

In summary, this chapter's second section presents a framework for developing a TQM implementation strategy at FNOC. First, it discusses grand strategy development and the need for an organizational vision with a clear set of goals. Second, it discusses an operational strategy matrix for organization assessment that will assist TQM implementation at FNOC. Third, it discusses the development of organizational tactics (actions) from the framework of the "Implementation Plan Matrix." From this framework, recommended actions were developed for FNOC and are found in Chapter VI. Finally, the success of this implementation strategy depends largely on the perseverance of the organization's members to carry out the proposed strategy.

III. THE CASE STUDY

A. FLEET NUMERICAL OCEANOGRAPHY CENTER

1. Overview

The Fleet Numerical Oceanography Center (FNOC) is the master computer center and controller of the Navy's worldwide Environmental Data Network. FNOC provides oceanographic and meteorological products 24 hours a day to both U.S. and allied operating forces.

Oceanographic and meteorological observations gathered from satellites, ground stations, ship and aircraft are transmitted to FNOC from around the world. Through computer analysis, the FNOC weather models and other software applications check, sort, and edit this weather data, providing Navy fleet units with a "snapshot" of atmospheric and oceanic conditions at a given time. This "picture" produces for these units a four-dimensional (space and time) numerical forecast of environmental variables such as wind, temperature, pressure, moisture, and sea conditions.

FNOC tailors its operations for a highly customized response to requests to meet the specific needs of system operators and decision makers. These are important services since the operational Navy (FNOC's original and largest customer) has moved from a forecast only mode to a

sophisticated user mode requiring meteorological and oceanographic products that satisfy the needs of modern weapon and sensor systems.

FNOC transmits approximately 2,500 regional oceanographic and meteorological forecasts daily on highspeed computer links from the Naval Oceanography Command Centers (Guam; Pearl Harbor, Hawaii; Norfolk, Virginia; Rota, Spain; and Suitland, Maryland) to the National Military Command Center in the Pentagon, and to other major command centers around the world.

2. FNOC Mission and Organization

The Fleet Numerical Oceanography Center mission is twofold: [Ref. 17]

- To provide, on an operational basis, numerical meteorological and oceanographic products peculiar to the needs of the Navy and other DoD forces across the globe. (Support ranges from strategic system to routine naval ship and aircraft operations to tailored rapid reaction contingency support); and

- to develop and test numerical techniques in meteorology and oceanography applicable for its headquarter's (Navy Oceanography Command) analytical and forecasting problems.

The successful accomplishment of the command mission is supported by about 300 civilian and military personnel and an annual operating budget of $14 million dollars. The employees include approximately 150 Military (50 Officers, 100 enlisted), and 150 civilians (26 management (GM'S) and 124 technical (GS's)). [Ref. 18]

FNOC's workforce can be characterized as predominately white, highly educated, and mobile. Also, 50% of its employees are civilian and 50% are military. Women make up 35% of the workforce. Finally, 60% of its employees are under the age of 40.

Five major departments, formally structured by function, form the primary support for the command mission and are under the supervision and control of a Director of Operations. FNOC's organizational chart is shown in Figure 3.1. Eleven staff offices form the administrative support for the command mission and are formally structured by function (see Figure 3.2). The computer systems department (Code 50) is the largest of all the major departments with little more than half the command's personnel working there. [Ref. 17:pp. 2.2-2.15]

3. FNOC Functions

FNOC, as the primary analysis and forecast facility for the U.S. Navy, must support a number of command functions. These functions are operationally oriented, complex, and technologically intensive. The following list provides a sample of FNOC'S complex operational capabilities and responsibilities: [Ref. 17:pp. 3.3.1-3.3.4]

- Provide operational oceanographic and atmospheric support, including ocean acoustic services, to U.S. military activities, or other U.S. government agencies, and elements of the armed forces of allied nations.
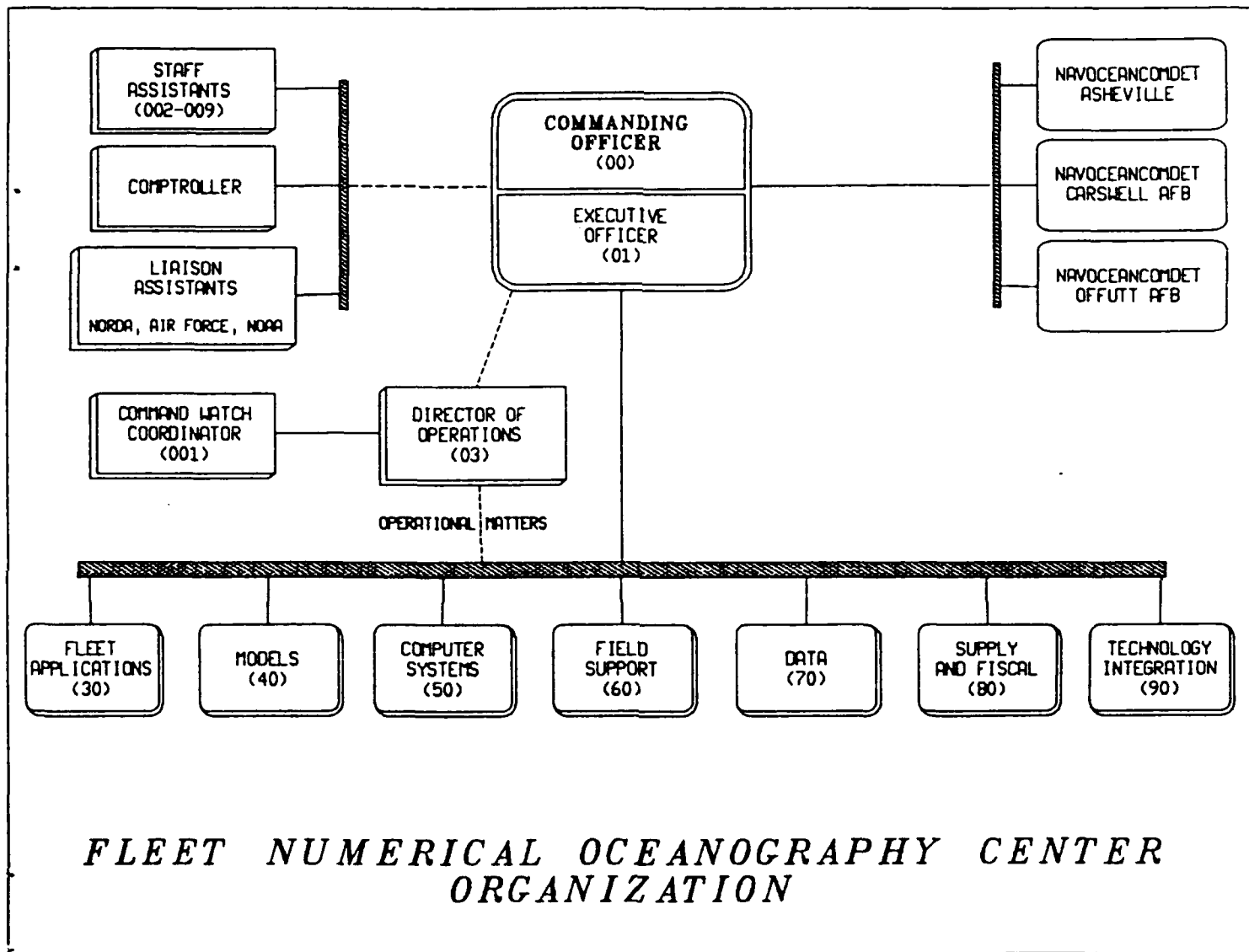
Figure 3.1. Fleet Numerical Oceanography Center's
Organization Chart

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COMMANDING OFFICER (00)

EXECUTIVE OFFICER (01)

NOROA LIAISON ASSISTANT (QLR)

USAF LIAISON ASSISTANT (QLA)

NOAA LIAISON ASSISTANT (QLNO)

FACILITES/ CIVILIAN PERSONNEL MANAGER (002)

COMMAND MASTER CHIEF (003)

ADMINISTRATIVE OFFICER (005)

DIRECTOR, PLANS & PROGRAMS (006)

SECURITY MANAGER (007)

SOFTWARE DEVELOPMENT COORDINATOR (008)

ADP HARDWARE COORDINATOR (009)

DIRECTOR OF OPERATIONS (03)

003A
Command
Career
Counselor

003T
Training
Petty
Officer

005A
Administrative
Assistant

006A
Assistant
Plans &
Programs

007A
Assistant
Security
Manager

03A
Deputy
Director

03B
Ops
Run
Manager

001
Command
Watch
Coordinator

STAFF ASSISTANTS

Figure 3.2. Fleet Numerical Oceanography Center's Staff Assistants.

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- Provide numerical products to support the optimum routing for both ships and aircraft to enhance missions with respect to weather, time and distance, and fuel consumption. (It's worth noting here that this command function, alone, saves the Navy in excess of an estimated $40 million annually in fuel savings. This does not include the cost of damage avoided or the overall increase in the effectiveness of naval operations.)

- And finally, provide backup service capability for the National Weather Service.

B. THE PROBLEM

The fog picturesquely draped the Monterey hills as Captain Jenson drove through the Carmel Valley to work one early May morning. Despite the beauty of that foggy morning, he was a troubled man pondering his command's future for the 90's. He had received word, six months earlier, from the CNO that his organization should become actively involved with the implementation of TQM. Furthermore, headquarters had recently stated that his command could expect up to a 25% reduction in its personnel funding. And if that wasn't enough, the command was in the midst of replacing the heart of its operations with a multi-million dollar, state-of-the-art supercomputer--no simple task by any means. Because of these challenges, many significant changes were on the horizon that made him unsure of his organization's future as he had never been before. Nonetheless, he was sure of one thing and that was that Fleet Numerical Oceanography Center (FNOC)'s future would not be "business as usual."

Jenson was not surprised that the command's future personnel funding coulᴅ be up to 25% percent less than the organization had grown accustomed to during the free-spending years of the eighties. With newspapers reporting that peace was breaking out around the world, the American public wanted to "cash in" on its "peace dividend". This realigning of public priorities and subsequent Department of Defense (DoD) budget reductions would result in reduced operational funding for FNOC.

Captain Jensen was also anticipating replacing the heart of its operations with two multi-million dollar, state-of-the-art Cray Class Seven supercomputers. The old Control Data Cyber 205 Class Six supercomputer, euphemistically called "Sam" by command personnel, had performed splendidly over the past decade. But maintenance concerns along with the need for more processing power meant "ol' Sam" had to go. Since funding had been approved by DoD, Sam would be replaced over the next few years by the two Cray supercomputers.

While the Captain was still somewhat sentimental about losing Sam, he was especially proud to be receiving the new supercomputers. With the new Crays, the command would be the undisputed largest single computer facility in the Navy. But more importantly, the supercomputer technology might be the vehicle that would enable the command to transition into the future, maintaining service with less future personnel funding.

The Captain had anticipated funding cuts and replacing "ol Sam", but he hadn't fully anticipated the degree to which the Navy would accept the new management system, TQM, that was sweeping across DoD. The Captain, along with other Navy Officers-in-Charge, had received orders six months earlier from Admiral C. Trost, Chief of Naval Operations (CNO), to "become actively involved with the implementation of TQM within their organizations." The CNO had, also, designated TQM as a "CNO special interest item" to highlight the importance of quality improvement to the entire Navy. TQM had suddenly become a major priority in the Navy.

Jenson was no expert on TQM, although, he did have a general knowledge about the subject and he had attended one "TQM general awareness" seminar. He knew that this management system had a fundamental philosophy based on continuous improvement by doing "work right" while focusing on the "right job". And if his memory served him correctly, the hallmark of this revolutionary management system was continuous improvement in all organizational work processes.

He felt that TQM was simply good management and that many of FNOC's current operations exhibited TQM characteristics. Yet, he felt that TQM could prove beneficial to the command if it could help the command maintain and improve its good management practices "systematically."

Nonetheless, TQM would become Captain Jenson's priority in the future months. In his mind, TQM had the potential to

significantly assist the command in meeting its personnel funding and technology implementation challenges.

As the Captain got closer to work, he began to summarize his thoughts. "Lets see now... less funding...the Crays...TQM implementation." "Well the XO is working on the funding situation...the Ops Boss seems to be doing fine with the Cray transition..." "Damit," he says half aloud to himself. "I need a someone to replace my TQM man -LCDR Holt. He's retiring in a two weeks. He's done a good job sorting out the initial details about TQM, but he's only scratched the surface." "Hmm," he continues his thoughts, "What I need is someone who can really take charge and research this matter so we can get this program off the ground."

By this time, Jensen had arrived at work and was walking down the hallway to his office. "I know who will do me a good job...," but before he could complete his thought, Ruby, his secretary, interrupted him.

"Good morning, Sir," said Ruby.

"Good morning," said the Captain. "Ruby, would you call Dock and tell him I would like to see him as soon as possible."

"Sure," said Ruby. "I just saw him go back to his office a few minutes ago.

CDR Dock Williams

Dock William was a twenty-two year Navy veteran who had attained the rank of Commander through sheer hard work. He

had primarily served the Navy working on staffs of many successful senior officers, including the current CNO. Although he had the necessary diplomatic polish to serve in these jobs, Dock was known as a take-charge, no-nonsense, straight-shooter who wouldn't hesitate to tell anyone just what he thought about a particular subject.

When asked about TQM and if he thought TQM was good for FNOC or the Navy, he would respond "I think, in general, TQM is what FNOC needs to become more efficient. But I can tell you one thing about TQM, it is not going to work if 1) it requires more paperwork than the benefits generated 2) it is forced on our people, or 3) it solves only trivial problems." In general, he felt TQM was good for FNOC and the Navy, but he looked at the new management system with an eye of healthy skepticism.

Currently, Dock was the Field Support (Code 60) Department Head (manager) in charge of the FNOC's highly complex computer communications network. He was responsible for managing automatic data processing communication and display support for FNOC field activities. It was here in his Field Support office, busily reviewing a proposal for a new environment display system, where he received word from Ruby that the Captain wanted to see him.

"Thanks, Ruby," said Dock, "I'll be down in a few minutes."

"Good morning, Captain," said Dock, upon arrival at the Captains office. "You wanted to see...,"

"Yeah, yeah, Dock," the Captain said, cutting Dock's statement short. "Have a seat. I want to talk to you about TQM."

"Quite frankly, Dock," the Captain continued, "I need someone with your take-charge kind-of-attitude to take the helm of this TQM matter that LCDR Holt has been researching. As you know, Holt is retiring in a couple of weeks. I know you're busy with other projects, but I feel fairly certain that you can still manage this job for me. Will you do it?"

"Well, yes," responded Dock. "But exactly... what do you want me to do..."

"Dock," replied the Captain. "I need you to find out all you can about TQM so that we can develop a sound implementation plan. And most importantly, I want to know the Command's readiness to accept TQM. Are you still with me, Dock?" asks the Captain.

"Well, yes," Dock grudgingly replied, thinking about the limited time and money he and his Department had to spend on this matter. "Sir, I want to ask about the resources..."

"Dock," the Captain responded, anticipating Dock's question, "I want this to be at the top of your priorities. You have my full support in this matter. And I will see to it that this command supports you with whatever is necessary for you to get this job done."

"Okay, Captain," said Dock. "I'll do what I can for you. I'll keep you initially advised about my progress on an informal basis, if that's alright with you."

"Sounds fine to me," said the Captain. "I heard you wanted to talk about the networking of..." and their conversations drifted on to the routine business of the day.

By the mid-afternoon, Dock was busily reading the Command TQM file that he had received from LCDR Holt after his early morning conversation with the Captain. "Hmm, this job is going to require much work and a significant amount of coordinating," he thought to himself. "I need someone who can be fully dedicated to producing the results I need for the Captain." Continuing his thoughts, "who can I get that would give the commitment that I need to get this job done."

By late afternoon, Dock had resolved this problem in his mind. After determined thought and considerable discussion with some of his co-worker's, Dock decided that a thesis student from the Naval Postgraduate School (NPS) just might be the person he needed to assist him in his TQM research.

Having attended the Naval Postgraduate School himself a "few" years back, Dock new about that "thesis commitment" to get those necessary signatures for graduation. And he also knew about the desire of many of the students to work on real world problems, not to mention the desire to obtain money for that coveted thesis travel. It seemed logical to Dock that matching a thesis student's "commitment" to graduate and

desire for "real world" work with the challenge faced by his command seemed like the perfect solution to handling this TQM project.

"Yeah, that's who I need to assist me with this TQM project " he says half-aloud to himself. "A NPS thesis student."

Naval Postgraduate School Thesis Student

In short order, Dock and Jim, a Naval Postgraduate School student, were traveling the country attending TQM seminars and learning all that they could about the new management method. Jim interviewed command personnel, observed command functions, and learned much about the command and its operations. Dock coordinated the effort and provided funding for Jim' work.

Perhaps the most fruitful part of Jim's on-site research was his interviews with command personnel to find out what they knew about TQM and how they hoped TQM would help their organization. These interviews yielded the fact that most command personnel had only a very limited knowledge about TQM. Yet, many of the people had an opinion on how TQM needed to help their work and the Command in general.

Jim reported these opinions and helpful comments to Dock. A representative sample is listed below.

- "TQM will hopefully help us streamline. We're presently at a strength of roughly 300 personnel. We won't grow. In fact, we could lose up to 25% of our people in the next few years. Problem is... demands will grow!"

- "I hope TQM will helps us have more effective meetings. I have many meetings that I must now attend which restrains the time I have to do my regular job."

- "TQM will help the Command if it offers a forum for the Departmental officers and key staff members to search out more efficient ways to use our personnel and organize our departments. Also, I would like to see TQM help us capitalize on the emerging synergism of FNOC and our sister organizations with joint environmental interests (NPS, NOAA, COAP, and NOARL-W.)"

Despite the insight gained from the interviews, Dock felt he still needed more information. FNOC is a complex organization that requires more than just the opinions of a few selected people to accurately assess the organization. He needed a more comprehensive instrument to assess the readiness of the Command to accept TQM.

It was during this time that the Jim discovered the Naval Personnel Research Development Center (NPRDC) in San Diego, California. He learned that NPRDC had researchers writing surveys similar to what Dock and FNOC needed to assess the command's readiness to accept TQM. After the approval of Dock and many labor intensive hours, Jim, NPRDC researchers, particularly Mike White tailored a computerized Organizational Assessment Survey that met FNOC'S survey needs.

After administering the survey, Dock, NPRDC researchers, and Jim sat down to compile and analyze the data. Two months had passed since they had first started work on the survey. To those involved in collecting and analyzing the data, the results of the survey seemed worth the work. Nonetheless, it

was these results that Dock would be presenting to the Captain the next morning.

The following morning, in the command briefing room, Dock placed the transparency with the survey results on the overhead projector as he prepared for his presentation.

"Captain, we assessed the readiness of the command to accept TQM using results from the survey we circulated last month," began Dock, providing survey background information to the Captain, "Our survey analysis is based on the responses of 191 of the 296 people at FNOC, an approximate 66% response rate. This response rate provided us with a statistically significant sample size and results that we can be 95% confident they represent the views of our Command. As you can see, the survey results break down into two sections: TQM Issues and General Job and Organizational Issues."

"The first section, TQM Issues," continued Dock, "is a qualitative summary of the most significant 95 question results asked in this category.

"The second section, General Job & Organizational Issues," Dock added, "presents the scale categories and their associated mean score that were used to analyze its 151 questions and their significance in terms of TQM."

"For further information about these categories in the General Job & Organizational Issues section," directed Dock, "I refer you to Appendix B in the handout before you."

The survey results looked as follows.

TOTAL QUALITY MANAGEMENT ISSUES

FNOC employees:

1) have limited TQM knowledge;

2) believe that top-management supports TQM;

3) are receptive to change and new work methods, yet, feel that management cautiously accepts change, and

4) possess fundamental problem-solving skills needed to understand basic TQM methodology, including its statistical methods.

GENERAL JOB AND ORGANIZATIONAL ISSUES

SCALE CATEGORIES	MEAN SCORE
Work Group Cooperation	5.196
Job Feedback	4.093
Compensation	3.515
Openness to Change	4.500
Supervisor Work Support	4.457
Supervisor Performance Emphasis	5.203
Job Design	5.006
Job Pressure	4.052
Quality of Performance	5.508
Organizational Clarity	4.208
Organizational Integration	4.258
Job Understanding	5.639
Performance Orientation	4.379
Human Resource Development	4.021
Organizational Vitality	4.247

Customer Satisfaction	5.394
Organizational Effectiveness	5.041
Organizational Satisfaction	3.559

Dock began his explanation of the survey scaling criteria by saying, "The scales we used to assess the results (the mean score of the scale categories) runs from one to seven," continued Dock, "One means a very small extent, four means some extent, and seven means a very large extent."

"As you may remember," Dock pauses, reminding the Captain of some of the survey details, "the survey question format was--to what extent does an individual feel about a particular question. For example, to what extent does this command provide managers with information needed for sound decision making? And the response would be any integer between one and seven."

"Therefore," continued Dock. "a scale category with a mean score of 4.0 indicates a response of slight agreement (viewed as a slightly positive response) with the question being asked. A scale category with a mean score of 4.5 indicates a response of more than slight agreement (viewed as a positive response) with the question being asked. And alternatively, a mean score of 3.8 indicates a response of less than slight agreement (viewed as a negative response) with the question being asked," Dock paused here to see if

the Captain was clear on how the survey results were interpreted.

The Captain, looking at the results on the screen, scratched his head and said, "Go on. I'm with you so far."

Dock glanced back to the screen and began his presentation in earnest... providing the Captain a description of the survey results and making few recommendations.

Although Dock's brief had been informative and showed much initiative, Jenson was still a bit unsure of Dock's assessment of the Command's readiness to accept TQM. Jenson decided that he would review the survey results and develop his own conclusions later.

The following afternoon, the Captain began his own analysis of the survey data.

"Lets see, now," said the Captain muttering quietly to himself, "I think I'll begin my analysis with a review of the scale category descriptions."

The Captain settled himself comfortably into his chair, picked up a pen to jot down notes as ideas came to mind and began his own analysis of the survey results.

** The End **

IV. SURVEY RESULTS AND ANALYSIS

A. RESPONSE TO THE SURVEY

This chapter presents and analyzes the Organizational Assessment Survey results administered at FNOC during the week of September 24-27, 1990. The computerized survey was developed and compiled by Mike White, the author, and researchers from Naval Personnel Research and Development Center (NPRDC) of San Diego, CA. The survey provides the author and FNOC with results needed for making an assessment of organizational strengths and weakness that might assist or hamper the implementation of TQM. More specifically, the survey was used to determine whether the organization was indeed ready for TQM or whether there were other more urgent issues needing resolution before embarking on TQM implementation.

The Organizational Assessment Survey is composed of three sections and 255 questions:

1) 151 questions deal with general job and organizational issues

2) 95 questions deal with TQM issues and

3) 9 questions deal with FNOC demographics.

(See Appendix A for a copy of the complete survey.)

The survey analysis is based on the responses of 191 of the 296 people at FNOC, approximately a 66% response rate. Using Graham Kalton's method of determining a statistically significant survey sample size, 168 surveys provide effective results for analysis [Ref. 19]. That is, with the results from 168 surveys, one can be 95% confident that the survey results represent the views of the organization. The response rate for this survey exceeded the necessary number required to provide statistically significant survey results. In short, the survey was an administrative success with results providing meaningful data to its user when properly evaluated.

The remaining part of this chapter presents the results and analysis of 191 surveys in three sections: 1) FNOC Demographics 2) TQM Issues and 3) General Job and Organizational Issues.

B. FNOC DEMOGRAPHICS

1. Results and Analysis

The following categories describe the FNOC demographics of its 191 survey respondents.

Sex: Sixty-five percent of the employees are male with the remaining 35% being female.

Ethnic Origin: Seventy-eight percent of the employees are white, 11% are black, 6% are Hispanic, and 5% are Asian.

Education: The employees are highly educated and highly professional: Ninety percent the employees have some college, a college degree, or a higher education level. Twenty-five percent of them have at least some postgraduate education, while 12% have a graduate or professional degree.

Age: Approximately 50% of the employees are between the ages of 21 and 35 with the other half between the ages of 35 and 55.

Military-Civilian: Approximately 50% of the employees are military with the other half being civilian.

Length of Service at FNOC: The employees are a mobile workforce--typical of many military organizations: Seventy percent of the employees have been employed five or less years with FNOC.

Level of Responsibility: Sixty percent of the employees are non-supervisors.

2. FNOC Demographics Summary

FNOC's workforce can be characterized as predominately white, highly educated, and mobile. Also, 50% of its employees are civilian and 50% are military with women making up 35% of the workforce. Finally, 60% of its employees are under the age of 40.

C. TOTAL QUALITY MANAGEMENT ISSUES

1. Results and Analysis

This section summarizes the most significant survey results about TQM-related issues and analyzes their significance.

The survey results of this section show that FNOC employees:

1) have limited TQM knowledge;

* Only 15% of the employees have a general knowledge about TQM theory and its methodology.

* Less than two percent of FNOC employees have actively participated as a member of a group involved in any systematic TQM improvement activity.

2) believe that top-management supports TQM;

* Ninety-five percent of the employees believe that the Commanding Officer supports TQM.

* Ninety-two percent of the employees believe that top-management supports TQM.

* Approximately 75% of the employees believe that management will provide TQM support with money, training and time.

3) receptive to change and new work methods, yet, feel management cautiously accepts change;

* Ninety-eight percent of the employees believe that updating work methods can be key to quality and productivity improvement.

* Eighty-eight percent of the employees believe that the future strength of the Command is dependent on the

continuing growth of its members through appropriate training.

- Fifty-four percent of the employees believe that managers at all levels have the authority to try a promising new approach.

- Only 43% of the employees believe that a promising new approach is likely to be approved quickly for a trial.

4) possess fundamental problem-solving skills needed to understand basic TQM methodology, including its statistical methods.

- 83% of the employees have experience using charts or graphs to track data over time.

- 45% of the employees have at least a basic understanding of statistics through their higher education classes.

2. TQM Issues Summary

The survey results show that FNOC employees:

- have limited TQM knowledge;

- believe that top-management supports TQM;

- are receptive to change and new work methods, yet, feel that management cautiously accepts change, and

- possess fundamental problem-solving skills needed to understand basic TQM methodology, including its statistical methods.

D. GENERAL JOB AND ORGANIZATIONAL ISSUES

1. Introduction

This section summarizes the most significant survey results (scale categories) about general job and

organizational issues and analyzes their significance in terms of TQM. The categories were chosen based on their ability to assess FNOC'S readiness to accept TQM.

The first category set, work group cooperation and openness to change, were chosen because their results indicated the Command's readiness to accept change and reflected the extent of employee cooperation in performing their jobs. High scores in these categories are needed to aid the Command in achieving its TQM implementation goal. A high score in openness to change indicates Command readiness to accept TQM. A high score in work group cooperation indicates that there existed the necessary cooperation among employees to engage in the team-building that is an essential ingredient of TQM's problem-solving methodology.

The second category set, job-feedback and organizational integration, was chosen because their mean scores were the lowest of the other categories. These low mean scores reflect areas of greatest need for improvement at FNOC. By analyzing these two categories, perhaps, a need for TQM would be found. If the survey revealed command need for improvement and the Command perceived that TQM offers the methodology for improvement, then there exists a rationale for implementing TQM at FNOC.

The third category set, quality of performance and customer satisfaction, was chosen because they indicated management's focus relative to important TQM concepts--

customers and quality work. High scores in these two categories are needed to assist the Command's TQM implementation goal. If management's focus closely matched those of TQM, these common goal interests could be more easily integrated and would aid TQM implementation at FNOC.

2. Scale criteria

The scale used to assess this section's survey results (the mean score of the scale category) runs from one to seven. One means a very small extent, four means some extent, and seven means a very large extent.

For example, the survey question format was: to what extent does an individual feel about a particular question. A sample question is "To what extent does this command provide managers with information needed for sound decision making?" And the response is some integer between one and seven.

Therefore, a scale category with a mean score of 4.0 indicates a response of slight agreement (viewed as a slightly positive response) with the question being asked. A scale category with a mean score of 4.5 indicates a response of more than slight agreement (viewed as positive response) with the question being asked. And, alternatively, a mean score of 3.8 indicates a response of less than slight agreement (viewed as a negative response) with question being asked. See Appendix C for further information about the scale categories and some of their results.

Based on the preceding scale criteria, the scale category results and analysis of their significance in terms of TQM follow.

3. Results and Analysis

This section is presented in three parts:

PART 1

The following presents the results and analysis from the Work Group Cooperation and Openness to Change categories. The results indicate that FNOC employees cooperate well together and exhibit a readiness to accept change needed for TQM implementation.

<u>Work Group Cooperation</u>

Mean score: 5.196

This category's mean score is viewed as strongly positive for the Command and indicates that employees work very well together.

Ninety-six percent of the employees responded positively with a mean score of 5.964 to question #1: "Do the people you work with cooperate to get the job done?" This response shows that FNOC employee work well together which is necessary for TQM team-building.

Ninety percent of the employees responded positively with a mean score of 4.883 to question #2: "Do your co-workers help you improve your performance?" This response shows, again, that employees work together, well.

And 87% of the employees responded positively with a mean score of 5.011 to question #3: "Is there good communication in your work group? This response shows that employees have the communication skills needed for TQM team problem-solving activities.

In short, the positive responses in these categories indicate a good foundation for team-building, an essential ingredient of the TQM problem-solving methodology.

Openness to Change

Mean score: 4.5

This category's mean score is viewed as positive for the Command and indicates that FNOC is open but cautious to change. Seventy-six percent of the employees responded positively with a mean score of 4.155 to question #11: "Are employee suggestions considered for use by management?" This response shows that management listens to employee suggestions for improving its operations needed for TQM's participative management style; however, the response's mean score compared to the other scores in this category shows that while management listens to employee suggestions, the recommendations are, perhaps, cautiously accepted.

Seventy percent of the employees responded positively with a mean score of 3.477 by saying no to question #12: "Is there resistance to improved work methods at this organization?" This response shows that employees are open to

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change that improves their work. TQM involves a major change, a paradigm shift, in management philosophy.

And 77% of the employees responded positively with a mean score of 4.761 to question #25:   "Is improved productivity a clear goal at this organization. This response shows that employees believe that improving the Command's efficiency is clearly stated by management.

In short, the responses to these questions show that employees are open to new work methods and employee suggestions; however, question #11's mean score compared to the other scores in this category shows that employees perceive that management listens to employee suggestions but cautiously accepts them.   FNOC shows that they are open to change needed for TQM implementation, which requires that employees accept a new attitude and a new management methodology for doing work.

Part 2

The following presents the results and analysis from the Job Feedback and Organizational Integration categories. The results indicate that FNOC's communication channels, both vertical and lateral, need improvement and that FNOC needs to improve its organizational integration.

Job Feedback

Mean score: 4.093

This category's mean score is viewed as only slightly positive for the Command and indicates a weakness (relative to

other categories' mean scores) in the command's communication feedback process relating to work groups.

Seventy-three percent of the employees responded positively with a mean score of 4.527 to question #4: "Do you get information on how well you are performing?" This response shows that employee perception of Command feedback to its work groups is good compared to the other questions in this category.

Sixty-four percent of the employees responded slightly positive with a mean score of 4.027 to question #5: "Do you get information on how well your work group is performing?" This response shows that employees view performance feedback to their workgroup was weaker than the performance feedback to the individual.

And only 60% of the employees responded positively with a mean score of 3.722 to question #6: "Do you get information on how well this organization is performing as a whole?" This relatively low mean score shows that employees perceive that performance feedback information on the Command as a whole needs improvement.

In general, the responses to in this scale category indicate that Command communication feedback on people's performance needs improvement, particularly feedback information on how well the organization is performing as a whole. The relatively low mean scores in this category

indicates a Command need for better communication throughout the command.

TQM can improve the Command's communication challenge it now faces. TQM offers an organizational infrastructure composed of cross-functional teams (described in chapter V). Through linking members, these teams fully link decision-making and communication across departments and within the chain-of-command. Team-building can improve organizational communication, both vertically and horizontally in the command.

Organizational Integration

Mean Score: 4.258

This category's mean score is viewed as only slightly positive for the Command and indicates a weakness (relative to other category's mean scores) in Command interdepartmental communication. Of the five questions in this category, three of them had mean scores that revealed relatively neutral mean scores and the following two questions had negative responses.

Sixty-eight percent of the employees responded negatively with a mean score of 3.594 to question #40: "Do the various departments in this organization understand each other's problems and difficulties?" This response shows a weakness in the Command's inter-departmental communication.

And 73% of the employees responded negatively with a mean score of 3.677 to question #42: "Do the various departments in this organization understand each other's

objectives and goals?" This negative response shows that the command departments need a better understanding of each other's goals.

In general, the responses in this category indicate that Command interdepartmental communication needs improvement.

TQM can improve this organizational integration challenge the Command now faces. TQM offers an organizational structure that emphasizes both vertical and lateral communication links throughout its structure. When used properly, the TQM organizational structure can correct the communication flow barriers of FNOC's functionally designed organizational structure that leads to the preceding communication challenges the Command now faces.

Part 3

The following presents the results and analysis from the Quality of Performance and Customer Satisfaction categories. The results indicate that FNOC's management focuses on satisfying its customers with quality products/service.

<u>Quality of Performance</u>

Mean Score: 5.508

This category's mean score is viewed as strongly positive for the Command and indicates that management has high quality standards that emphasize on work being done right the first time. Ninety-four percent of the employees responded

positively with a mean score of 5.522 to question #29: "Does your work have to be done right the first time?," And 89% responded positively with a mean score of 5.494 to question #30: "Does your supervisor emphasize high standards of quality?" These two responses show that the Command's management emphasizes high quality standards.

In general, the mean score responses indicate that a Command management focus is on quality of work. TQM focuses on quality of work through process improvement and offers problem-solving tools that will help the Command maintain its work quality goals.

Customer Satisfaction

Mean Score: 5.394

This category's mean score is strongly positive, indicating that the command is highly customer-oriented and its perception of customer satisfaction is high.

Ninety-two percent of the employees responded positively with a mean score of 5.888 to question #78: "Is there an emphasis on satisfying this organization's customers?" This response shows that the Command stresses that work be done that satisfies its customers.

Eighty-five percent of the employees responded positively with a mean score of 5.022 to question #79: "Has management clearly identified its customers to organizational members?" This positive response indicates that management has identified the Command's customers to its employees.

And 91% of the employees responded positively with a mean score of 5.272 to question #80: "Are your customers satisfied with the products/services provided by this organization?" This response shows that FNOC employees perceive that their customer are satisfied with their products/services.

In general, the mean score responses in this category indicate that a Command management focus is on satisfying the Command's customers. TQM focuses on meeting the customer's requirements, needs and expectations, the first time and every time and offers problem-solving tools that will help the Command systematically satisfy the requirements of its customers with quality products/services.

4. Job and Organizational Summary

The preceding categories were chosen based on those most helpful in assessing FNOC'S readiness to accept TQM. The analysis shows that FNOC:

- employees cooperate well together and exhibit a readiness to accept change needed for TQM implementation.

- communication channels, both vertical and lateral, need improvement and that FNOC needs to improve its organizational integration.

- management focuses on satisfying its customers with quality products/service.

E. CHAPTER CONCLUSION

The analysis of this chapter shows that FNOC is ready for the implementation of TQM and reveals a Command need for improvement.

Based on the preceding analysis, Command personnel interviews, and this study's literature review, the next chapter tailors a TQM implementation plan for FNOC.

V. TQM IMPLEMENTATION PLAN: AN AGENDA FOR CHANGE

A. INTRODUCTION

This chapter presents a plan for implementing Total Quality Management at Fleet Numerical Oceanography Center (FNOC), Monterey, CA. The plan was developed under the guidance of Naval Personnel Research Development Center (NPRDC) researchers and the assistance of CDR Ronald Phoebus, Assistant Director, Naval Oceanographic Atmospheric Research Laboratory (NOARL) of Monterey, CA. It draws from practitioner-oriented management literature and FNOC's Organizational Assessment Survey results in light of the Command's goal to implement TQM into its organization. The plan is a two-phased agenda for change and offers guidelines for the future TQM development at FNOC. Its central theme is a campaign strategy with a top-down approach for implementing TQM at FNOC. This strategic plan offers FNOC a focused, integrative, yet efficient way of implementing TQM into its organization.

B. CAMPAIGN STRATEGY

Based on the survey results and Lancourt's Implementation Assessment Matrix, this strategic plan recommends the use of a campaign strategy for implementing TQM at FNOC. The survey results indicate that FNOC employees were open to change but

were not in full agreement with the Command's TQM implementation goal. This is because they lack TQM knowledge. Until FNOC employees are aware of the need for and the benefits of TQM, full consensus for the Command's TQM implementation goal cannot be achieved. According to Lancourt's Implementation Plan Matrix, full consensus with the Command's TQM implementation goal is required before using a cooperative or collaborative strategy. Alternatively, a content strategy in not appropriate since the survey results indicate that employees are open to change. Therefore, given the Command's readiness to accept change and lack of TQM knowledge, a campaign strategy of educating FNOC employees is appropriate.

TQM education for FNOC employees is critical to the campaign strategy. The training plan should emphasis the role of the campaign strategy by maintaining a long-term perspective in the face of short-term pressures. Its training should be timely and determined.

The training plan should consist of the following.

1) LEVEL I--consisting of general awareness training, including an introduction to TQM philosophy and its basic concepts, e.g. process improvement;

2) LEVEL II--consisting of an introduction into basic TQM methods and tools, including beginning statistical analysis and graphical tools, and

3) LEVEL III--consisting of instruction for advanced TQM methods, including advanced statistical analysis and socio-technical design.

A long-term commitment to TQM training is key to this plan's campaign strategy's success of implementing TQM at FNOC.

C. TOP-DOWN APPROACH

In addition to the campaign strategy, the implementation plan recommends a top-down approach for the TQM implementation at FNOC. The reason for this is as follows.

Research shows that an organization increases the likelihood of TQM acceptance if top-management actively supports the new management system [Ref. 20]. The following comment suggests that leadership-by-example is key to TQM's success, "...commitment to quality must start at the top...Actions not words produce results." [Ref. 21] Managers and supervisors should practice TQM fundamentals before expecting their subordinates to practice then.

The Commanding Officer (CO), Executive Officer (XO) and other senior personnel have earned the respect of their subordinates through competence and integrity. The author's interviews with Command personnel indicate respect for the knowledge, vision, and integrity of these people. A number of interviews indicated a strong respect for the CO's vision, judgement, and ability to "get the job done." Clearly,

without the support of the CO, XO, and key senior command member, TQM implementation at FNOC becomes more difficult. A top-down approach for TQM implementation at FNOC is appropriate.

Therefore, Phase 1's first section of the implementation agenda begins with Top-management Preparation. Top-management includes the CO, XO, senior Department Heads, and key staff personnel. During this three month period, the Command begins to develop some of the tools necessary to implement TQM. Top-management is provided with TQM general-awareness training. This top management preparation develops the "critical mass" of people needed by FNOC to get its TQM program off the ground.

The beginning of Phase 1 and an agenda for top-management preparation follows.

D. PHASE 1

Top Management Preparation (Jan 91-Mar 91)

1. Initial meeting of TQM Consultant with CO and selected managers.   July 90

2. Select and train TQM coordinator.   August 90

3. Develop framework for TQM Implementation Strategy
                                                   Jul 90-Dec 90

4. Begin organization assessment.   Sep 90

5. Orientation meetings with TQM Consultant, CO, and all top managers.   Dec. 90

6. Conduct Level I training for top managers

Jan 91-Mar 91

7. Think about and diiscuss TQM concepts. Throughout

8. Attend Implementers Seminar Jan 91-Mar 91

E. TQM STRUCTURE

After the top-management preparation stage, the command should now be ready to begin its formal start-up activities. For this activity, FNOC needs an organizational structure that supports the command's commitment to quality. Before discussing a new organizational structure, it is necessary to describe FNOC'S organizational structure.

In Chapter III we learned that FNOC is formally structured by function with five departments and eleven staff offices. (See Figures 3.1 and 3.2) While organizing by function is perhaps the most logical and basic form of departmentalization for FNOC, it has its flaws. One major flaw is the barriers the structure imposes to interdepartmental communications and decision-making. For this reason, a matrix structure is often used to avoid this problem.

In a matrix organization, functional departments and project teams overlap. Employees report to both a functional and a project manager. Matrix organization is effective for complex projects that span across functional departments.

TQM uses a matrix structure (see Figure 5.1) similar to the one described in the preceding paragraphs. TQM calls its

matrix structure a "parallel structure." [Ref. 22]
The TQM structure involves all organizational levels and is
process-oriented. It removes barriers to improvement by
linking cross-functional communication and decision-making.
Yet, this type of structure follows the chain-of-command and
facilitates top-down management.

TQM calls its "project teams", described above, "cross-functional teams." [Ref. 22] Cross-functional teams are at
the heart of the TQM organizational structure. They are
described as follows.

F. CROSS-FUNCTIONAL TEAMS

TQM's organizational infrastructure is based fundamentally
on three cross-functional teams: 1) Executive Steering
Committee (ESG) 2) Quality Management Board (QMB) and 3)
Process Action Teams (PAT). A description of these teams and
some their more common functions follow. [Ref. 22]

1. Executive Steering Committee

An Executive Steering Committee (ESG) exists at the
highest level of the organization and is usually composed of
four to five members. It is a permanent board whose job is to
direct the quality improvement. For FNOC, the members will
most likely include the CO, XO, selected Department Heads, and
key staff members.

LINKING FOR COMMUNICATION AND DECISION MAKING
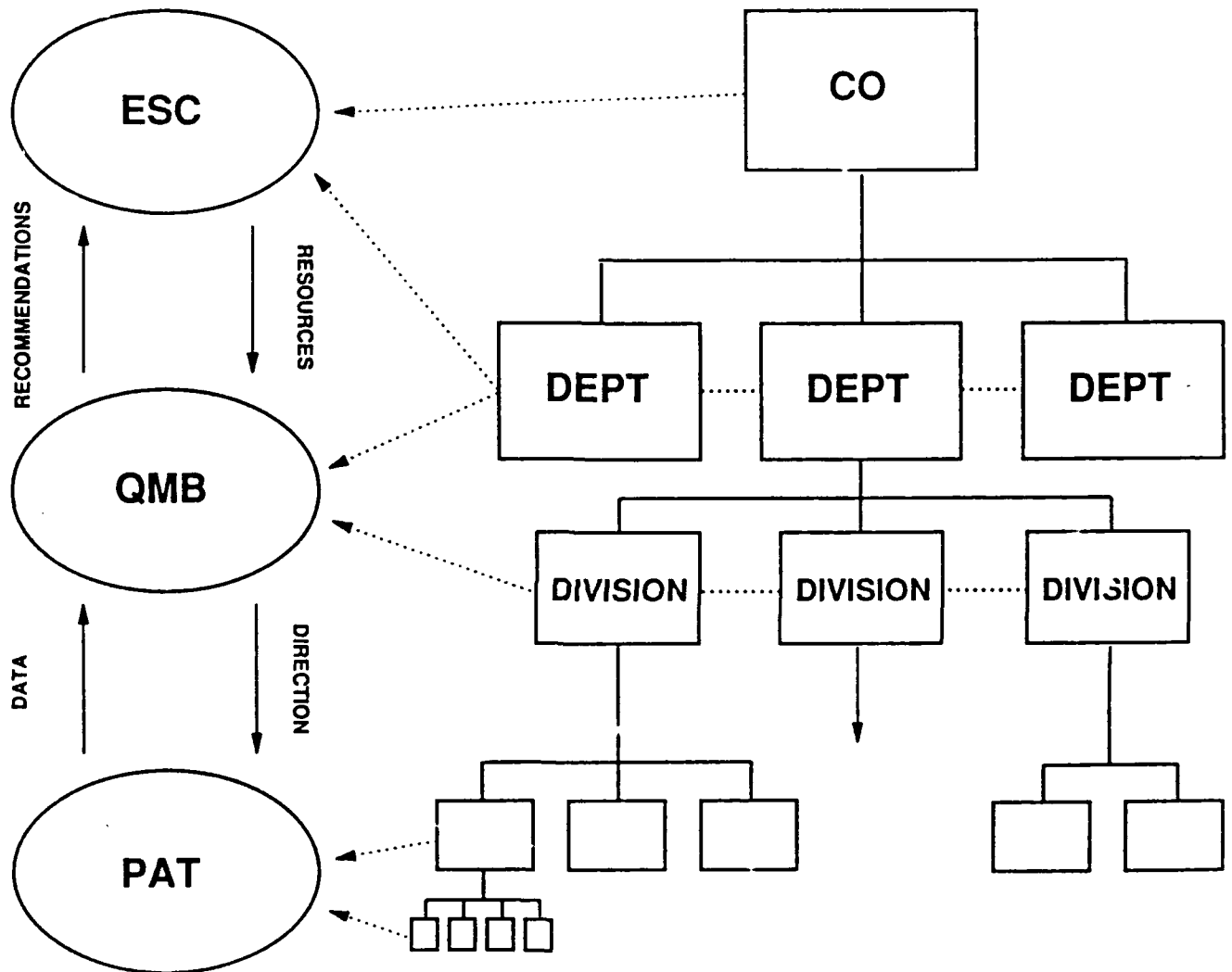
Figure 5.1. Total Quality Management Organizational Structure

Some of the more common functions of an ESG include:

* Identifying external customer requirements

* Developing a quality management philosophy

* Developing a TQM strategic plan

* Removing barriers to the philosophy and plan

* Identifying processes and chartering Quality Management Boards (QMB)'s

* Providing resources and decision support to QMB's

2. Quality Management Board

The Quality Management Board (QMB) consists of middle managers who have responsibility over a particular portion of a process.

In general, FNOC department heads and their assistant deputies are the "process owners" at the Command and should be QMB members. Finally, the QMB's are permanent cross-functional teams, established to ensure continuous improvement in its associated work process.

Some of the more common functions of the QMB include:

* Developing plans for process improvement

* Initiating process analysis

* Chartering Process Action Team (PAT) to work on sub-processes and to collect data

* Evaluating effects of process changes

* Recommending major process changes to ESG

* Providing resources and decision-support to PAT teams

3. Process Action Team

The PAT team member is selected from among workers who work in and have knowledge of the process. These teams will disband when they provide the QMB with the data necessary for continuous improvement efforts.

Process Action Teams:

- Develop measures to analyze work processes, including statistical methods.

- Identify and remove variation in the process output that is unpredictable, unstable, or intermittent.

- Make recommendations for reducing common causes of variation

- Document process analysis and improvement activities

Furthermore, all the cross-functional teams have linking members. One member of the ESC is on each QMB. And, at least, one member of each QMB is on each of its PAT's. By linking the teams in this way, decision-making and communication across departments and within the chain-of-command are fully connected.

Finally, when the teams are in operation, the ESC provides resources to the QMB and the QMB provides direction to the PAT down the chain-of-command. The PAT provides data to the QMB who in turn provides recommendation to the ESC up the chain-of-command. ESG and QMB members provide interdepartmental decision-making and communication. This

project team interaction is similar to FNOC's Project Integration Team's (PIT).

The Project Integration Team (PIT) currently used at FNOC is similar to the TQM structure described in the preceding paragraphs. The PIT is established for integrating all facets of a project (including money, people and technology) to most efficiently and effectively accomplish it objectives [Ref. 23]. The PIT overlaps the functional departments similar to the "project teams" of a matrix organization or the TQM's "cross-functional teams". Perhaps a subtle different between the PIT and TQM's cross-functional teams is the focus of each team. PIT's seem to focus on integrating hardware and systems into the command. Yet, TQM's cross-functional teams focus on process improvement and do not necessarily focus on adding new technology. Nonetheless, the similarity of the two organizational structure systems may help FNOC employees better understand the TQM structure. This overlap may lead to easier Command acceptance of the TQM structure needed for TQM implementation.

By establishing a formal TQM structure in the Command, FNOC readies itself for the formal start-up activities. During the next three months, the Command develops a detailed TQM implementation plan, establishes ESC teams, develops TQM plans and policy, and refines its survey assessment.

An agenda for these formal start-up activities follows.

Formal Start-up Activities (Mar 91-May 91)

9. Form Executive Steering Committee.   Mar 91

10. Start Team Building.Mar 91-Oct 91

11. Begin to integrate TQM into the strategic planning
    process.   Mar 91-May 91

12. Specify organization's TQM policy.   Mar 91-May 91

13. Develop implementation plan. (June 1)   Mar 91-May 91

14. Refine organization assessment.   Apr 91

After establishing a formal implementation plan, the
command is now ready to develop its support activities.
During the next three months, the command develops its
internal, on-going TQM training capability. This includes
selecting and training TQM instructors and team leaders.

An agenda for these support activities follows.

Support Activities (Jun 91-Aug 91)

15. Select and train
    TQM trainers/statistician.   Jun 91-Aug 91

16. Begin training team leaders.   Jun 91-Aug 91

17. Develop internal, ongoing capability for Level I -
    Level II training.   Jun 91-Aug 91

After establishing an ongoing TQM training capability,
the Command is now ready to begin middle management
preparation. During the next three months department heads,
department head assistants, selected staff, and first line

supervisor who have not already received Level I (TQM general-awareness training) do so. This management/supervisor group begins to think and discuss TQM concepts. They also begin to reevaluate external customer requirements and include non-supervisory person opinions in this matter during the process activity stage.

An agenda for middle management preparation follows.

Middle Management Preparation (Jun 91-Aug 91)

18. Conduct Level I training for middle managers.   Jun 91-Aug 91

19. Think about and discuss TQM concepts.   Jun 91-Aug 91

20. Determine external customer requirements. Jul 91-Sep 91

After middle management receives TQM general awareness training, the Command begins its initial process improvement activities. During the next three months, the command begins Level I training for its non-supervisory personnel and the remaining managers who have not already received their level I training. The Executive Steering Committee (ESC) begins chartering Quality Management Boards (QMB) for work processes selected for improvement. During the later part of these activities, the QMB's begin to select personnel for Process Action Teams (PAT). The PAT members begin initial work on processes selected for improvement and receive Level II training at the same time. The reason for delaying Level II

training until this point in the process is because this type of training is more effective if it is applied to real problems (similar to a "learning by doing" philosophy). Finally, all members of the command are encouraged to discuss TQM concepts and develop new ideas for improving their work.

An agenda for these process improvement activities follows.

Process Improvement Activities (Sep 91-Dec 91)

21. Select process improvement efforts.   Sep 91

22. Charter Quality Management Boards.   Sep 91

23. Conduct Level I training for
    non-supervisory personnel.   Sep 91

24. Think about and discuss TQM concepts.   Sep 91

25. Select Process Action Teams.   Oct 91

26. Conduct Level II training just-in-time.   Sept 91-Oct 91

This completes the first year of TQM activities, Phase 2 activities follow.

G. PHASE 2

After a year of on-going TQM activity from within the organization, the Command should now be ready to begin its TQM expansion activities. During the next year (1991), the Command should begin to refine its implementation plan by reviewing its successes and problems. The Command should take

corrective actions for its problems and revise the implementation plan as necessary to meet its current environment. They should also begin developing a formal customer feedback system.

The Command needs a formal customer feedback system to begin refining its improvement operations. According to TQM, this can only be done by meeting its customers requirements, needs, and expectations, the first time and every time. Therefore, to improve their operation systematically, the Command needs a formal customer feedback system.

The Command now begins expand its TQM dialogue to include its suppliers, then developing the "bridges" that will allow FNOC to expand its TQM system into suppliers organizations for the benefit of all.

The reason for this expansion is that most Command functions have processes with roots that are outside of its immediate control. And, if the Command is to continue to improve its operations, it must rely on its suppliers to improve their work.

For example, FNOC operations depend on some of the weather software models supplied by Naval Oceanographic Atmospheric Research Laboratory (NOARL) researchers. If the Command is to continue to improve its operations, it must rely on NOARL to provide them with weather software models that are timely, well-documented, operationally compatible, etc. Therefore, it is reasonable to assist NOARL in improving its

products/services because of the positive impact it can have on FNOC's operation.

An agenda for TQM expansion activities follows.

TQM Expansion Activities (Jan 91-Dec 91)

27. Prepare for Phase II implementation.   Jan 91

28. Refine implementation plan.   Jan 91

29. Develop formal customer feedback system.   Jan 92-May 92

30. Expand efforts to include
    external suppliers.   Jan 92-Dec 92

H. SUMMARY

This chapter presents a plan for implementing Total Quality Management at Fleet Numerical Oceanography Center (FNOC), Monterey, CA. The plan is a two-phased agenda for change and offers guidelines for the future development of TQM at FNOC. Its central theme is a campaign strategy with a top-down approach for implementing TQM at FNOC. This strategic plan offers FNOC focused, integrative, yet efficient way of implementing TQM into its organization. Finally, by following the guidance of this plan and through Command initiative, FNOC can help make TQM a daily part of its operations.

An agenda summary of this plan follows.

I. AGENDA SUMMARY

Top Management Preparation (Jan 91-Mar 91)

1. Initial meeting of TQM Consultant with CO and selected
   managers.   July 90

2. Select and train TQM coordinator.   August 90

3. Develop framework for TQM
   Implementation Strategy.   Jul 90-Dec 90

4. Begin organization assessment.   Sep 90

5. Orientation meetings with TQM Consultant, CO,
   and all top managers.   Dec 90

6. Conduct Level I training for top managers. Jan 91-Mar 91

7. Think about and discuss TQM concepts.   Throughout

8. Attend Implementers Seminar.   Jan 91-Mar 91

Formal Start-up Activities (Mar 91-May 91)

9. Form Executive Steering Committee.   Mar 91

10. Team Building.   Mar 91-Oct 91

11. Begin to integrate TQM into the
    strategic planning process.   Mar 91-May 91

12. Specify organization's TQM policy.   Mar 91-May 91

13. Develop implementation plan. (June 1)   Mar 91-May 91

14. Refine organization assessment.   Apr 91

Support Activities (Jun 91-Aug 91)

15. Select and train TQM
    trainers/statistician.   Jun 91-Aug 91

16. Begin training team leaders.   Jun 91-Aug 91

17. Develop ongoing capability for
    Level I - II training.   Jun 91-Aug 91

Middle Management Preparation (Jun 91-Aug 91)

18. Conduct Level I training for
    middle managers.   Jun 91-Aug 91

19. Think about and discuss TQM concepts.   Jun 91-Aug 91

20. Determine external customer requirements. Jul 91-Sep 91

Process Improvement Activities (Sep 91-Dec 91)

21. Select process improvement efforts.   Sep 91

22. Charter Quality Management Boards.   Sep 91

23. Conduct Level I training for
    non-supervisory personnel.   Sep 91

24. Think about and discuss TQM concepts.   Sep 91

25. Select Process Action Teams.   Oct 91

26. Conduct Level II training just-in-time. Sept 91-Oct 91

2. <u>Phase 2</u>

    TQM Expansion Activities (Jan 91-Dec 91)

27. Prepare for Phase II implementation.   Jan 91

28. Refine implementation plan.   Jan 91

29. Develop formal customer feedback system. Jan 92-May 92

30. Expand efforts to include external
    suppliers.   Jan 92-Dec 92

VI. CONCLUSIONS AND RECOMMENDATIONS

A. REVIEW

A Chief of Naval Operations (CNO) initiative in 1989 prompted Fleet Numerical Oceanography Center (FNOC) to request that an organizational study of its operations be conducted and a strategy for implementing Total Quality Management (TQM) be developed. This thesis study accepted that challenge.

The study's goal was to determine FNOC's readiness to accept TQM. If they were assessed as ready for TQM, then a TQM implementation plan would be tailored for their needs.

The study used a two-phased approach to assess FNOC. The first phase was a review of the current practitioner-oriented management literature about TQM, change theory, and strategic management. The second phase was followed by an on-site field study of FNOC itself, including an Organizational Assessment Survey and personnel interviews. Based on this research, the following conclusions and recommendations are provided.

B. CONCLUSIONS

Conclusion #1

FNOC employees cooperate well together and exhibit a readiness to accept TQM. High survey scores in work group cooperation showed that the necessary cooperation exists among employees to engage in the team-building that is an essential

ingredient of TQM's problem-solving methodology. High survey scores in openness to change showed a command readiness to accept TQM. Cooperation among employees and their openness to change will aid the Command in achieving its TQM implementation goal.

Conclusion #2

FNOC employees have the fundamental problem-solving skills needed to understand basic TQM methodology, including statistical methods, but, they have limited TQM knowledge. A majority of the employees have experience using charts or graphs to track data over time and have a statistical education, though, only a small percentage of them have a general knowledge about TQM theory or its methodology. Despite FNOC employees possessing the problem-solving skills needed to understand TQM methodology, their lack of TQM knowledge will hamper the Command in achieving its TQM implementation goal unless they receive TQM training.

Conclusion #3

FNOC's top-management has influence over Command attitude toward TQM. Research shows that an organization increases the likelihood of TQM acceptance if its top-management actively supports the new management system. Command interviews and the survey show that FNOC employees respect the knowledge, vision, and integrity of its leaders--particularly the CO, XO, and key senior Command members. This combination of top-management influence and the likelihood of strategy success

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makes the top-down approach an appropriate strategy for FNOC to use in achieving its TQM implementation goal.

Conclusion #4

FNOC'S management focuses on satisfying its customers with quality products/services. High survey scores in quality of performance and customer satisfaction categories show that the Command stresses doing work that satisfies its customers. Since FNOC's quality management focus closely matches those of TQM, these common goal interests can be more easily integrated and will aid TQM implementation at FNOC.

Conclusion #5

FNOC communication and organizational integration needs improvement. Low survey scores in these categories (relative to other survey category scores) reflect areas of greatest need for Command improvement. This improvement need offers FNOC a rationale for implementing TQM into its organization. Through TQM education, the Command may perceive that TQM offers a methodology for improving its communication and integration needs. This improvement need offers FNOC a rationale for using the TQM methodology and can be used in helping the Command achieve its TQM implementation goal.

C. RECOMMENDATIONS

The first recommendation is that FNOC initiate the TQM Implementation Plan tailored for them and presented in Chapter V. The plan is a two-phased agenda for change and offers

guidelines for FNOC's future TQM development. Its central theme is a campaign strategy with a top-down approach for implementing TQM at FNOC. By following the guidance of this plan and through Command initiative, FNOC can help make TQM a daily part of its operations. This strategic plan offers FNOC a focused, integrative, yet efficient way of implementing TQM into its organization.

The second recommendation is for FNOC to emphasize the campaign notion of its TQM Implementation Plan. Conclusion #1 and #2 show that FNOC employees are open to change, cooperate well when working together, and have the necessary skills for TQM; however, employee skills and goals are not in full harmony with the Command's TQM implementation goal because they lack TQM knowledge. Until FNOC employees are aware of the need for improvement and the benefits of TQM, the Command's TQM implementation goal will be difficult. Therefore, given the Command's readiness to accept change and its lack of TQM knowledge, a determined and timely campaign strategy of educating its employees is appropriate.

The third recommendation is for FNOC to emphasis the top-down notion of its TQM Implementation Plan. Conclusion #3 shows that an organization increases its likelihood of TQM acceptance if top-management actively supports this new management system's implementation. It also shows that FNOC employees view top-management with respect for their knowledge, vision, and integrity. Conclusion #4 shows that

FNOC'S quality management goals are compatible with TQM and should be easily integrated together. Therefore, given top-management's focus on quality and its ability to influence Command attitudes, a top-down approach for achieving its TQM implementation goal is appropriate.

The fourth recommendation is that once FNOC begins its process improvement activities that they begin by improving non-trivial problems. Conclusion #5 shows that command communication and its organizational integration needs improvement. Command need for improvement offers FNOC a good opportunity for its TQM process improvement activity. Once FNOC employees are TQM trained and perceive that TQM offers a methodology for improving processes, FNOC process improvement activities focused on its communication and integration challenges are appropriate.

D. RECOMMENDATIONS FOR FUTURE STUDY

During the research and strategy development, peripheral issues surfaced which would be good topics for future study. These TQM-related topics are briefly mentioned.

1. Follow-up study of FNOC

One of the key principles of TQM is the notion of using data for organizational and process improvement. This thesis provides an initial assessment of FNOC through the survey developed by researchers and Naval Personnel Research and Development Center (NPRDC) of San Diego, CA. Another

similar survey of FNOC in two years (1993) would provide the organization feedback information useful to measure effectiveness of their change efforts.

2. Follow-up analysis of the FNOC organizational assessment survey

A good follow-on topic to the research done in this thesis is to study in more detail the survey results. A strong statistical analysis of the data will fine-tune the analysis provided by this thesis. Furthermore, a detailed analysis may reveal new information useful to FNOC management in their "journey" of continuous process improvement.

3. Reward and Incentive Systems for TQM

Leadership plays a key role in avoiding problems of TQM implementation. Appropriate reward and incentive systems help managers avoid individual and group behavior that hampers their strategic policy goals. If TQM is to be long term success within an organization, its leadership needs to provide the "right" reward system for its people.

This topic could explore some of the following:

- Promotion and compensation plans that "champion the TQM crusade".

- Federal personnel regulations that conflict with TQM convictions.

- Reward systems that encourage group efforts versus individualistic competition.

APPENDIX A. ORGANIZATIONAL ASSESSMENT SURVEY

This survey is designed to obtain your thoughts about your job and organization. Your frank, candid opinions are important and sincerely welcome. Please read each question carefully before responding. Most can be answered by simply circling the number that most nearly represents your opinion. Completing the survey requires only a few minutes of your time.

Your responses will be kept completely confidential. Therefore, please do not sign your name to this survey. The information you provide will be added to that of other participants for purposes of data analysis. The survey includes several questions concerning yourself and your job. Please be assured that the information obtained in this survey will not be used to reveal your identity or your individual responses.

Your assistance in this effort is appreciated.

PRIVACY ACT STATEMENT

Public Law 93-579, the Privacy Act of 1974, requires that you be informed of the purposes and uses to be made of this survey. Authority to collect this information is granted in Title 5 of the United States Code. Providing this information is voluntary. The information will be used for statistical purposes only.

First, we would like to get your opinions about some general job and organizational related issues.

TO WHAT EXTENT...	Very Small Extent			Some Extent			Very Large Extent
1. do the people you work with cooperate to get the job done?	1	2	3	4	5	6	7
2. do your co-workers help you improve your performance?	1	2	3	4	5	6	7
3. is there good communication in your work group?	1	2	3	4	5	6	7
4. do you get information on how well you are performing?	1	2	3	4	5	6	7
5. do you get information on how well your work group is performing?	1	2	3	4	5	6	7
6. do you get information on how well this organization is performing as a whole?	1	2	3	4	5	6	7
7. is your present compensation satisfactory, considering the work you do?	1	2	3	4	5	6	7
8. is your pay fair when compared to others with similar responsibilities in this organization?	1	2	3	4	5	6	7
9. is your pay fair when compared to people with similar responsibilities in other organizations?	1	2	3	4	5	6	7

10.	does your performance in this organization determine your compensation level?	1	2	3	4	5	6	7
11.	are employee suggestions considered for use by management?	1	2	3	4	5	6	7
12.	is there resistance to improved work methods at this organization?	1	2	3	4	5	6	7
13.	does your supervisor give recognition for good performance by her or his people?	1	2	3	4	5	6	7
14.	do people in your work group hear about mistakes and not successes?	1	2	3	4	5	6	7
15.	does your supervisor help you improve your performance?	1	2	3	4	5	6	7
16.	is your supervisor willing to accept your suggestions for improving work processes?	1	2	3	4	5	6	7
17.	does your supervisor emphasize high standards of efficiency?	1	2	3	4	5	6	7
18.	does your supervisor encourage people to give heir best effort?	1	2	3	4	5	6	7
19.	do you have the materials and supplies you need to do your work?	1	2	3	4	5	6	7
20.	are procedures designed so that the work flow is efficient?	1	2	3	4	5	6	7
21.	is assistance readily available when a problem occurs?	1	2	3	4	5	6	7
22.	is there pressure from others for you to work harder?	1	2	3	4	5	6	7
23.	are the deadlines for completion of your work realistic?	1	2	3	4	5	6	7
24.	is the workload here so heavy that your co-workers show sign of strain?	1	2	3	4	5	6	7
25.	is improved productivity a clear goal at this organization?	1	2	3	4	5	6	7
26.	do people you work with complete less work than they should?	1	2	3	4	5	6	7
27.	do people in other departments complete less work than they should?	1	2	3	4	5	6	7
28.	do you think that, when things go wrong in your work, it is the fault of the "system" and not the people?	1	2	3	4	5	6	7
29.	does your work have to be done right the first time?	1	2	3	4	5	6	7

30.	does your supervisor emphasize high standards of quality?	1	2	3	4	5	6	7
31.	does this organization have clear goals?	1	2	3	4	5	6	7
32.	does this organization use goals as a basis for day-to-day work practices?	1	2	3	4	5	6	7
33.	is planning for the achievement of goals in this organization complete?	1	2	3	4	5	6	7
34.	is planning for the achievement of goals in this organization formal?	1	2	3	4	5	6	7
35.	does this organization have clear plans to meet its goals?	1	2	3	4	5	6	7
36.	is this organization oriented toward the long-term goals?	1	2	3	4	5	6	7
37.	are the goals of this organization clearly communicated to the employees?	1	2	3	4	5	6	7
38.	do you have good communication with others who are at your same organizational level?	1	2	3	4	5	6	7
39.	does this organization provide managers with information needed for sound decision making?	1	2	3	4	5	6	7
40.	do the various departments in this organization understand each others' problems and difficulties?	1	2	3	4	5	6	7
41.	is decision making in this organization based on the short-term view?	1	2	3	4	5	6	7
42.	do the various departments in this organization understand each others' objectives and goals?	1	2	3	4	5	6	7
43.	do the various departments in this organization truly cooperate with one another?	1	2	3	4	5	6	7
44.	do you understand how your job fits in with other jobs in the organization?	1	2	3	4	5	6	7
45.	do you understand how your work contributes to the organization's mission?	1	2	3	4	5	6	7
46.	are people in this organization free to take independent actions that are necessary to carry out their job responsibilities?	1	2	3	4	5	6	7
47.	are people encouraged to take reasonable risks in their efforts to increase the effectiveness of the organization?	1	2	3	4	5	6	7
48.	is open discussion of conflicts encouraged?	1	2	3	4	5	6	7
49.	is constructive criticism encouraged within this organization?	1	2	3	4	5	6	7
50.	are people encouraged to innovate in their jobs?	1	2	3	4	5	6	7

51.	are the measures or yardsticks used to judge employee performance clear?	1	2	3	4	5	6	7
52.	are employees clear about the end results that are expected of them in their jobs?	1	2	3	4	5	6	7
53.	do employees in this organization receive the support they need from higher levels of management?	1	2	3	4	5	6	7
54.	are people held personally accountable for the results they produce?	1	2	3	4	5	6	7
55.	is this organization successful in developing people from within for more advanced jobs?	1	2	3	4	5	6	7
56.	does this organization provide opportunities for individual growth and development?	1	2	3	4	5	6	7
57.	are the talents of employees appropriately matched to the demands of their job?	1	2	3	4	5	6	7
58.	are the opportunities for promotions within the organization good?	1	2	3	4	5	6	7
59.	does the organization search broadly among its members to promote into vacancies?	1	2	3	4	5	6	7
60.	is your job a significant challenge?	1	2	3	4	5	6	7
61.	does the current reporting structure (i.e. chain of command) help implement the organization's strategies?	1	2	3	4	5	6	7
62.	does the current reporting structure (i.e. chain of command) help achieve the organization's goals?	1	2	3	4	5	6	7
63.	do the systems in this organization provide a manager with the information that he/she needs for decision making?	1	2	3	4	5	6	7
64.	are decisions in this organization based on adequate information?	1	2	3	4	5	6	7
65.	does the current reporting structure (i.e. chain of command) help coordinate the work?	1	2	3	4	5	6	7
66.	is decision making in this organization timely?	1	2	3	4	5	6	7
67.	when compared with similar organizations, is this organization a pacesetter?	1	2	3	4	5	6	7
68.	is this organization responsive to change in its business environment?	1	2	3	4	5	6	7
69.	is decision making in this organization innovative?	1	2	3	4	5	6	7
70.	are communications in this organization good?	1	2	3	4	5	6	7

71. does this organization have a rapid pace of
activities and a sense of urgency?   1   2   3   4   5   6   7

72. are decisions made at the appropriate level?   1   2   3   4   5   6   7

73. is the grapevine the only way you can get important
information at this organization?   1   2   3   4   5   6   7

74. are you given timely information when changes
in your work are being planned?   1   2   3   4   5   6   7

75. are you given the chance to influence changes
in the way your work is done?   1   2   3   4   5   6   7

76. when changes are made at this organization,
do the employees lose out in the long run?   1   2   3   4   5   6   7

77. does management follow through on
commitments it makes?   1   2   3   4   5   6   7

78. is there an emphasis on satisfying this
organization's customers?   1   2   3   4   5   6   7

79. has management clearly identified its customers
to the organizational members?   1   2   3   4   5   6   7

80. are your customers satisfied with the
products/services provided by this organization?   1   2   3   4   5   6   7

81. do employees trust management?   1   2   3   4   5   6   7

82. do you trust your supervisor?   1   2   3   4   5   6   7

83. does your organization respond well to peak
demands and emergencies?   1   2   3   4   5   6   7

84. is this organization able to avoid costly mistakes?   1   2   3   4   5   6   7

85. does this organization provide systems or support
to make it easier to get the job done?   1   2   3   4   5   6   7

86. does your supervisor encourage ideas and
suggestions about better ways to do the work?   1   2   3   4   5   6   7

87. does management follow up on suggestions
for improvement?   1   2   3   4   5   6   7

88. does management reward employees who show
initiative and innovation?   1   2   3   4   5   6   7

89. do the leaders of this organization
encourage creativity?   1   2   3   4   5   6   7

90. do the leaders of this organization ask people
about ways to improve the work produced?   1   2   3   4   5   6   7

91. is it really not possible to change things
in this organization?   1   2   3   4   5   6   7

92. does your work group have enough time
to perform work accurately?   1   2   3   4   5   6   7

93. does your work group have enough personnel to get the job done?	1	2	3	4	5	6	7
94. is the work in your group organized efficiently?	1	2	3	4	5	6	7
95. does your work group run well overall?	1	2	3	4	5	6	7
96. do people in your work group work well together?	1	2	3	4	5	6	7
97. does the structure of the work group facilitate mission accomplishment?	1	2	3	4	5	6	7
98. is the work load distributed equally among the members of your work group?	1	2	3	4	5	6	7
99. do people in your work group share responsibility for success and failure?	1	2	3	4	5	6	7
100. do people in your work group take pride in their work?	1	2	3	4	5	6	7
101. do people in your work group emphasize quality in their work?	1	2	3	4	5	6	7
102. are the leaders of this organization committed to providing top quality services/products/work?	1	2	3	4	5	6	7
103. do the leaders of this organization regularly review the quality of the work?	1	2	3	4	5	6	7
104. do the leaders of this organization set examples of quality performance?	1	2	3	4	5	6	7
105. does your supervisor clearly outline the goals of your work?	1	2	3	4	5	6	7
106. does your supervisor give credit to people when they do a good job?	1	2	3	4	5	6	7
107. when you do a good job, is it recognized?	1	2	3	4	5	6	7
108. do you often not get enough information to do your job properly?	1	2	3	4	5	6	7
109. does management promptly inform your work group of any new developments in the organization?	1	2	3	4	5	6	7
110. do you trust management to treat you with consideration?	1	2	3	4	5	6	7
111. does this organization's customers believe that you care what they think?	1	2	3	4	5	6	7
112. would this organization's customers "go elsewhere" if it were possible?	1	2	3	4	5	6	7
113. does management do a good job of anticipating the future needs of customers?	1	2	3	4	5	6	7

114. does your supervisor help you get the
experience and training you need? 1 2 3 4 5 6 7

115. do you and your supervisor discuss your training
and development needs at least once yearly? 1 2 3 4 5 6 7

116. do you have a written individual
development plan (IDP)? 1 2 3 4 5 6 7

117. does management trust employees to do their
job without being watched? 1 2 3 4 5 6 7

118. are employees within this organization
expected to meet demands
for high levels of performance? 1 2 3 4 5 6 7

119. are the goals of this organization truly
challenging? 1 2 3 4 5 6 7

120 are regulations that are designed to help
workers actually used against them? 1 2 3 4 5 6 7

Please indicate how much you agree or disagree with each of the following statements about your job.

		Strongly Disagree		Neither Agree Nor Disagree		Strongly Agree
121.	In general, I get along well with my co-workers.	1	2	3	4	5
122	My job gives me the opportunity to develop my skills.	1	2	3	4	5
123.	Considering the work that's required, the pay for this job is good.	1	2	3	4	5
124.	My supervisor is competent and knows her/his job well.	1	2	3	4	5
125.	My co-workers are usually cooperative on the job.	1	2	3	4	5
126.	My job gives me a sense of accomplishment.	1	2	3	4	5
127.	My supervisor treats me well.	1	2	3	4	5
128.	I get adequate pay for my level of performance.	1	2	3	4	5
129.	My job offers a good opportunity for promotion and advancement.	1	2	3	4	5
130.	In general, I am satisfied with my job.	1	2	3	4	5

Please rate each item according to how satisfactory or unsatisfactory it is.

		Satisfactory		Neither Satisfactory nor Unsatisfactory				Unsatisfactory
131.	Eating facilities	1	2	3	4	5	6	7
132.	Parking facilities	1	2	3	4	5	6	7
133.	Supplies	1	2	3	4	5	6	7
134.	Tools	1	2	3	4	5	6	7
135.	Equipment	1	2	3	4	5	6	7
136.	Restrooms	1	2	3	4	5	6	7
137.	Ventilation	1	2	3	4	5	6	7
138.	Air Conditioning	1	2	3	4	5	6	7
139.	Heating	1	2	3	4	5	6	7
140.	Lighting	1	2	3	4	5	6	7
141.	Size of Working Area	1	2	3	4	5	6	7
142.	Cleanliness of worksite	1	2	3	4	5	6	7
143.	Health services/First aid facilities	1	2	3	4	5	6	7
144.	Safety conditions (noise, fire hazards, unsafe practices)	1	2	3	4	5	6	7

IF YOU ARE A SUPERVISOR, please answer the following questions. IF YOU ARE A NONSUPERVISOR, please continue on the following page

	TO WHAT EXTENT...	Very Small Extent			Some Extent			Very Large Extent
145.	are the abilities of your subordinates well utilized on their jobs?	1	2	3	4	5	6	7
146.	all things considered, would you rather not be a supervisor?	1	2	3	4	5	6	7
147.	is there so much "red tape" involved in being a supervisor that it is difficult to get work done?	1	2	3	4	5	6	7

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148.	are you generally satisfied with the quality of the people referred to you for vacant positions?	1	2	3	4	5	6	7
149.	is it easier to ignore infractions than to take the necessary corrective action?	1	2	3	4	5	6	7
150.	have you had adequate training or preparation to be a supervisor?	1	2	3	4	5	6	7
151.	does your workload allow you adequate time to guide and assist your subordinates?	1	2	3	4	5	6	7

Total Quality Management Questions

Now, we would like to ask you some questions about your activity's Total Quality Management (TQM) effort.

1. How long has your organization been active in Total Quality Management?

   1. Less than 6 months   4. 2 to 3 years

   2. 6 months to a year   5. 3 years or more

   3. 1 to 2 years

2. In general, how well do you understand what TQM is all about?

Not At All Well		Moderately Well		Extremely Well
1	2	3	4	5

On the following pages are TQM-related roles. Please indicate if you have served in these roles during the last year by choosing "1" for No and "2" for Yes.

	No	Yes
3. Process Action Team member:	1	2
4. Quality Management Board member:	1	2
5. Facilitator:	1	2
6. Executive Steering Committee member:	1	2
7. Process Improvement/Shop Team member:	1	2

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Please indicate how often you participate in each of the following activities by selecting the appropriate number.(HOW OFTEN do you. . .)

		Never	Rarely	Sometimes	Often	Much of the time
8.	Attend TQM training	1	2	3	4	5
9.	Identify quality improvement goals	1	2	3	4	5
10.	Attend TQM/Process Action Team meetings	1	2	3	4	5
11.	Identify problem areas	1	2	3	4	5
12.	Make presentations on TQM concepts	1	2	3	4	5
13.	Monitor/discuss team progress	1	2	3	4	5
14.	Use Statistical Process Control (SPC) tools	1	2	3	4	5
15.	Collect data	1	2	3	4	5
16.	Lead Quality Management Board meetings	1	2	3	4	5
17.	Allocate resources needed	1	2	3	4	5
18.	Develop measures	1	2	3	4	5
19.	Suggest changes in process or procedures	1	2	3	4	5
20.	Read Deming/TQM material	1	2	3	4	5
21.	Discuss TQM with fellow employees	1	2	3	4	5
22.	Make decisions based on TQM results	1	2	3	4	5
23.	Attend process improvement seminars	1	2	3	4	5

Please indicate the extent to which management would provide the following in support of your organization's TQM effort. (TO WHAT EXTENT would management provide...)

		Do Not Know	Very Small Extent		Some Extent		Very Large Extent
24.	Money	0	1	2	3	4	5
25.	Training	0	1	2	3	4	5
26.	Facilitators	0	1	2	3	4	5
27.	Members' time	0	1	2	3	4	5

28.	Recognition	0	1	2	3	4	5
29.	Personnel development	0	1	2	3	4	5
30.	Implementation support	0	1	2	3	4	5
31.	Process improvement changes	0	1	2	3	4	5
32.	Verbal support	0	1	2	3	4	5

In your opinion, how much would the following individuals or groups support or oppose TQM?

		Don't Know	Strongly Oppose		Neither Support nor Oppose		Strongly Support
33.	The Commanding Officer	0	1	2	3	4	5
34.	Military Management	0	1	2	3	4	5
35.	Civilian Management	0	1	2	3	4	5
36.	Supervisors	0	1	2	3	4	5
37.	Non-Supervisory employees	0	1	2	3	4	5
38.	Union Officers	0	1	2	3	4	5
39.	Headquarters command	0	1	2	3	4	5
40.	The Senior Civilian (i.e., Technical Director or Executive Director)	0	1	2	3	4	5

41. Which statement best describes the relationship between quality and cost?
    1. As quality increases, cost increases.
    2. As quality increases, cost decreases.
    3. There is no relationship between quality and cost.
    4. I don't know.

Please circle the number of the statement which best describes your answer.

Please circle the number of the statement which best describes your answer.

		I Don't Know	Very Small Extent			Some Extent			Very Large Extent
TO WHAT EXTENT...									
42.	is quality in your department dictated by customer request?	0	1	2	3	4	5	6	7
2-43.	is your department responsive to customer input customer input?	0	1	2	3	4	5	6	7

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44.	are employees encouraged to find methods for increasing quality?	0	1	2	3	4	5	6	7
45.	are employees encouraged to find methods for increasing productivity?	0	1	2	3	4	5	6	7
46.	are employees encouraged to find methods for decreasing costs	0	1	2	3	4	5	6	7

47. Of the requirements listed below, please circle the one which is MOST important to your external customer.

1. Quality
2. Cost
3. Productivity
4. Being on schedule
5. I don't know

48. Most of the information you receive about your organization's TQM Program comes from your:

1. Supervisor
2. Co-workers
3. In-house newspaper
4. TQM office (i.e., memos, briefings)
5. Management meetings

	Never		Sometimes		Always
49. How often do you discuss the quality of your work with your customer (i.e., the person who receives your work)?	1	2	3	4	5

When you do your work over or modify it, is it because of...

	Never		Sometimes		Always
50. incomplete original information?	1	2	3	4	5
51. poor quality of work?	1	2	3	4	5
52. schedules set by others?	1	2	3	4	5

How much do you agree or disagree with each of the following statements:

	Do Not Know		Strongly Disagree		Neither Agree Nor Disagree		Strongly Agree
53. Productivity in my department is dictated by customer request.	0	1	2	3	4	5	
54. My department is concerned about staying on schedule.	0	1	2	3	4	5	

	Very Small Extent			Some Extent		Very Large

TO WHAT EXTENT...

55. are incentive awards given fairly? (e.g. special act, honorary)

1	2	3	4	5	6	7

56. are performance awards given fairly? (e.g. based on performance)

1	2	3	4	5	6	7

	Strongly Disagree	Disagree Disagree	Somewhat Agre	Somewhat Agree	Agree	Strongly Agree

How much do you agree or disagree with the following statement

57. This organization has a realistic schedule for replacing outdated equipment.

1		2	3	4	5	6

58. Organizational members have been adequately trained to use the equipment they have.

1		2	3	4	5	6

59. Before equipment is bought by or issued to this organization plans have been made concerning how it will be used and who will use it.

1		2	3	4	5	6

60. Efforts are made to update work methods in this organization (e.g., the way work is organized and the tools or materials used to accomplish it).

1		2	3	4	5	6

61. People in charge of similar work groups frequently share information about their work methods and practices.

1		2	3	4	5	6

62. Updating work methods can be key to quality and productivity improvement.

1		2	3	4	5	6

How much do you agree or disagree with the following statements?

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
63. Creative thinking is rewarded in this organization.	1	2	3	4	5	6
64. Taking risks is rewarded in this organization.	1	2	3	4	5	6
65. Managers at all levels have the authority to try a promising new approach.	1	2	3	4	5	6
66. A promising new approach is likely to be approved quickly for a trial.	1	2	3	4	5	6
67. The future strength of this organization is dependent on the continuing growth of its members through appropriate training.	1	2	3	4	5	6
68. Work delays are uncommon in this organization.	1	2	3	4	5	6
69. Once a job or project gets started, it's usually finished without undue delay.	1	2	3	4	5	6
70. There is little wastage of materials and supplies.	1	2	3	4	5	6
71. People make efforts to reuse or salvage excess materials and supplies whenever possible.	1	2	3	4	5	6
72. Tools and/or equipment are maintained and operated at peak efficiency.	1	2	3	4	5	6
73. Our tools and/or equipment rarely require repair.	1	2	3	4	5	6
74. This organization has sufficient personnel to accomplish its mission.	1	2	3	4	5	6

How much do you agree or disagree with the following statements?

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
75.	The turnover rate is low (for civilians).	1	2	3	4	5	6
76.	Organizational members are well trained.	1	2	3	4	5	6
77.	Organizational members receive the guidance and assistance they need to accomplish their work.	1	2	3	4	5	6
78.	This organization's materials and supplies are well accounted for without unexplained losses.	1	2	3	4	5	6
79.	This organization's materials and supplies meet quality specifications.	1	2	3	4	5	6

Organizational members rarely need to:

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
80.	shift work priorities in order to get jobs done.	1	2	3	4	5	6
81.	re-do a job or task.	1	2	3	4	5	6

82. Circle one response number next to the statement that best represents your organization. Circle one number below

Most non-supervisory members have direct input in setting goals or expectations for their work.   6

Most non supervisory members have indirect input through representatives in setting goals or expectations for their work.   4

Most non-supervisory members can negotiate with management after they are assigned goals or expectations for their work.   3

Most non-supervisory members have no input about goals or expectations for their work.   1

		YES	NO	NOT SURE
	Top-performing organizational members. . .			
83.	can expect a monetary bonus or award.	2	1	0
84.	can expect an award.	2	1	0
85.	can expect to be recognized by leaders at the top level.	2	1	0
86.	can expect to be told they are doing a great job.	2	1	0
87.	can expect increased responsibility.	2	1	0

This organization:

88. uses charts or graphs to track data over time (example: statistical process control)	2	1	0
89. uses diagrams or flow charts to highlight potential causes of problems.	2	1	0
90. has evaluated its office and work space design.	2	1	0
91. has posted information on bulletin boards about quality and/or productivity improvement.	2	1	0
92. has held contests to reward the "most improved" work groups.	2	1	0
93. has attempted to inform and involve everyone in quality and/or productivity improvement.	2	1	0
94. has used team building (techniques to improve group member relationships).	2	1	0
95. has established quality improvement teams (groups of individuals who come together to solve quality-related problems).	2	1	0

This final set of questions is needed to help us with the statistical analysis of the data. This information will allow for comparison withother employee groups. Please circle the number of the correct response. No attempt will be made to identify your individual responses in this or any other part of the survey.

1. What is your sex?

    1. Male   2. Female

2. What is your ethnic origin?

    1. American Indian or Alaskan Native
    2. Asian or Pacific Islander
    3. Black, not of Hispanic origin
    4. Hispanic
    5. White, not of Hispanic origin
    6. Other, (Please specify):_____

3. What is your highest educational level?

    1. Less than 9th grade level
    2. Some high school
    3. High school diploma or GED
    4. Vocational/technical training
    5. Some college
    6. Graduated from college (Bachelor's Degree)
    7. Some graduate school
    8. Graduate or professional degree (e.g. MBA/MA/PhD)

4. What is your age?

    1. Under 21   6. 41-45
    2. 21-25   7. 46-50
    3. 26-30   8. 51-55
    4. 31-35   9. Over 55
    5. 36-40

5. Are you currently a Military or Civilian employee?

    1. Military   2. Civilian

6. How long have you worked in this organization?

    1. Less than one year   4. 11-15 years
    2. 1-5 years   5. 16-20 years
    3. 6-10 years   6. more than 20 years

7. What is your current level of responsibility?

    1. Non-supervisor
    2. First-line supervisor
    3. Mid-level supervisor/manager
    4. Department Head or above

8. What is your current pay grade? (e.g. WG-8, GS-3, E-5)

    Pay Grade

9. What is your Department?

    Department/Directorate Name and Number_____

10. How many different technical training classes have you had? _____

11. Are you now a full journeyman in your job series?   1. yes   2. no

Please use the space below for any additional comments you may wish to make about any topic, regardless of whether or not it was covered in this survey.

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX B. SURVEY SCALES

The following provides additional information about the Organizational Assessment Survey categories.

SCALE 1   WORK GROUP COOPERATION

* Do people cooperate to get jobs done?

* Do co-workers help your performance?

* Is there communication in work groups?

SCALE 2   JOB FEEDBACK

* Do you get feedback on your performance?

* Do you get feedback on your workgroup?

* Do you get feedback about the whole organization?

SCALE 3   COMPENSATION

* Your current compensation satisfactory?

* Is pay fair compared to similar others?

* Pay fair compared to other organizations?

* Your performance equals compensation?

SCALE 4   OPENNESS TO CHANGE

* Employee suggestions considered by management?

* Resistance to improved work methods?

* Improved productivity and organizational goals?

SCALE 5   SUPERVISOR WORK SUPPORT

* Supervisor gives recognition for good performances?

* Work group hears mistake not successes?

* Supervisor helps you improve performance?

* Supervisor accepts suggestions to improve processes?

SCALE 6   SUPERVISOR PERFORMANCE EMPHASIS

* Supervisor emphasizes high standards of efficiency?

* Supervisor encourages people to give their best

effort?

SCALE 7   JOB DESIGN

* Do you have the necessary materials to do your work?

* Procedures designed so work is efficient?

* Assistance available when problems occur?

SCALE 8   JOB PRESSURE

* Lack pressure from others to work harder? Reverse

coded (RC).

* Deadlines for completing work realistic?

* Workload not too heavy for workers health?   RC

SCALE 9   QUALITY OF PERFORMANCE

* Must work be done right the first time?

* Supervisor emphasizes high standards of quality?

SCALE 10   ORGANIZATIONAL CLARITY

* Does organization have clear goals?

* Is the planning process to achieve goals complete?

* Is planning to achieve goals formal?

* Organization have clear plans for goals?

* Organization has long-term plans for goals?

* Organization goals available to employees?

* Decision making take long-term view?

SCALE 11   ORGANIZATIONAL INTEGRATION

* Good lateral communication from others?

* Departments know each others goals?*

* Departments truly cooperate with each other?

* Communication in organization good?

SCALE 12   JOB UNDERSTANDING

* Understand how your job fits with others?

* Understand how your work fits mission?

SCALE 13   PERFORMANCE ORIENTATION

* Measures used to judge employees clear?

* Employee know end results of jobs?

* People accountable for own job results?

SCALE 14 HUMAN RESOURCE DEVELOPMENT

* People developed within for bigger jobs?

* Opportunity for growth and development?

* Employee talents matched to job demand?

* Opportunities for promotion within organization?

* Organization fill vacancies from within?

* Is job a significant challenge?

SCALE 15 ORGANIZATIONAL VITALITY

* Decision making in organization timely?

* Organization pace-setter compared with others?

* Organization responsive to changes in business?

* Decision making in organization innovative?

* Organization has rapid pace sense of urgency?

SCALE 16 CUSTOMER SATISFACTION

* Emphasis on satisfying customers?

* Management identifies customer to employees?

* Customer satisfied with product/service?

SCALE 17 ORGANIZATION EFFECTIVENESS

* Organization responds to peak demands and emergencies?

* Organization able to avoid costly mistakes?

* Organization provides support to make job easier?

SCALE 18 ORGANIZATIONAL SATISFACTION

* I get along well with my co-workers?

* Job has opportunities to develop skills?

* Pay for this job is good?

* Supervisor is competent and knows his/her job?

* Co-workers usually cooperative on job?

* Job gives sense of accomplishment?

* Supervisor treats me well?

* Adequate pay for performance?

* Job has opportunity for promotion?

* In general I am satisfied with my job?

APPENDIX C. SURVEY SCALES

The following provides additional information about the Organizational Assessment Survey categories.

Mean Score

SCALE 1   WORK GROUP COOPERATION

* Do people cooperate to get jobs done?   5.964

* Do co-workers help your performance?   4.883

* Is there communication in work groups?   5.011

SCALE 2   JOB FEEDBACK

* Do you get feedback on your performance?   4.527

* Do you get feedback on your workgroup?   4.027

+ Do you get feedback about the whole organization 3.722

SCALE 4   OPENNESS TO CHANGE

* Employee suggestions considered by management? 4.155

* Resistance to improved work methods?   3.477

* Improved productivity and organizational goals? 4.761

SCALE 9   QUALITY OF PERFORMANCE

* Must work be done right the first time?   5.522

* Supervisor emphasizes high standard of quality? 5.494

SCALE 11   ORGANIZATIONAL INTEGRATION

* Good lateral communication from others?   3.594

* Departments know each others goals?   3.677

SCALE 16   CUSTOMER SATISFACTION

* Emphasis on satisfying customers?   5.888

* Management identifies customer to employees?   5.022

* Customer satisfied with product/service?   5.272

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